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Human Capital: Survey Development, Adolescent Perceptions and Correlates

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Human Capital: Survey Development, Adolescent Perceptions and Correlates

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Human Capital: Survey Development, Adolescent Perceptions and Correlates

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This study sought to investigate the saliency of Human Capital (HC), a set of six positive assets as contributors to the overall health, well-being and success of an adolescent population. Furthermore, given the mediating potential of individual attributes, this study also examined the role of gender, age and context. **PURPOSE:** Comparing the perceived human capital (HC), as a set of positive assets, among adolescents and the influence of educational experiences on the development of HC. Secondarily, this research investigated the predictive characteristics of individual characteristics such as gender, age, and context on perceived HC. **METHODS:** Focus groups & interviews were conducted with adolescents, teachers, and teacher educators to establish content validity and relevance to adolescents in the development of the HC survey. Repeated measures were used to test the reliability of the survey and exploratory factor analysis confirmed the presence of 6 factors including emotional, physical, intellectual, social, individual, and financial were identified as subscales of HC. Construct validity was examined through confirmatory factor analysis and 1312 (Mage

15.6, 40% female) adolescents completed the HC survey. Hierarchical regression was run to identify predictors of HC and ANOVAs were run on total capital by age, gender, and ethnicity to compare means and interactions.

RESULTS: Qualitative data from the interviews and focus groups were open coded, and teacher's emergent themes were 1) Developing HC knowledge, 2) Supporting the big picture, 3) Human capital, and 4) Power of opportunity. Teachers and adolescents were very interested in the topic of HC.

In hierarchical regression, the model was statistically significant $F(5,903)=33.24$, $p<.000$, $R^2=.155$, Adjusted $R^2=.151$. Based on structure coefficients, the best indicator of total HC described in the model was free lunch followed by gender. Age was also shown to be a predictor of total HC as total HC increased as adolescent ages advanced. Ethnicity was statistically significant demonstrating that Hispanic adolescents' perceptions of HC were lower than all other ethnicities in total HC. **CONCLUSION:** Schools and communities have daily access to adolescents and the power to provide positive HC building experiences through opportunities before, during, and after school.

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INTRODUCTION

Worldwide, 31% of adults are inactive, with 10.8% of all deaths in the United States due to physical inactivity (Kohl et al., 2012). The lack of gross muscular movement required for moderate energy expenditure is the fourth leading cause of death worldwide, thus suggesting that physical inactivity is a global pandemic (National Institute of Health [NIH], 2008). Although the environment may influence adolescent inactivity, only 8% of adolescents reported achieving the recommended 60 minutes of physical activity each day (Troiano et al., 2008). Patterns of lifestyle choices and physical activity levels begin in childhood and track into adulthood (Malina, 2001; Blair et al., 1989) making the reversal of such behaviors difficult. Therefore, addressing physical inactivity during childhood is an important way to establish the habitual engagement in physical activity across the lifespan.

To combat obesity and the health risk associated with physical inactivity, the Institution of Medicine (IOM) and the Association for Supervision and Curriculum Development (ASCD) have endorsed applying a Whole-of-School approach and *Whole School, Whole Community, Whole Child* model (WSCC), respectively. The WSCC model is focused on increasing the interactions and capabilities of enhancing positive health habits within the community. Creating collaboration between schools and communities increases support for adolescent learning and health. Specifically, placing adolescents at the center of ecological change while involving families and communities in the maintenance and improvement of psychosocial and physical environments is believed to have the greatest potential for changing student behaviors. WSCC proposes unifying schools, families, and communities to ensure adolescents are healthy, safe, engaged,

supported, and challenged which is key to an adolescents' cognitive, emotional, physical, and social development. The composite outcome of cognitive, emotional, physical, and social assets can be qualified as human capital (HC). In general, HC refers to knowledge, skills, and abilities acquired by an individual, traditionally through education and experience (Bailey, Hillman, Arent, & Petitpas, 2012). Because of its holistic and influential nature, HC is critical when considering an individual's future success and employability after their education is complete.

This dissertation investigates HC among adolescents, through the development of a HC survey and analysis of its relation to demographic and contextual variables. Elevated HC has the potential to improve health care issues, morbidity statistics and the quality of everyday life. When conceptualized, HC was considered to be synonymous with a person's economic worth (Schultz, 1961; Becker, 1964). When an individual's daily routine included active transport and occupations that demanded physical labor one's perceive HC was increased and influenced the ability to contribute to society (e.g. employment, success). Because daily routines have evolved over time, becoming less physically active due to technological advances in the workplace and the decline in active transportation, reductions in human capital have been identified (MacCallum, Howson, & Gopu, 2012). Recently the definition has moved away from this narrow scope, whereby human capital now encompasses the broad aspects of a holistic individual such as their emotional, intellectual, physical, and social facets.

Investments in HC are an amalgamation of experiences occurring across the lifespan. Parents influence what type and amount of human capital their children experience in early childhood while education plays a significant role in HC development

from age 5-18 years. Teachers, peers, community, activities and specialty groups play an important role during this time in the education process. Such groups are the leading contributors in HC development outside of the home environment. Most research shows that participating in physical activity and sport during childhood and adolescence is highly likely to lead to higher physical activity participation during adulthood (Malina, 2001; Glenmark, Hedberg, & Jansson, 1994), but not all physically active youth become active adults (Herman, Craig, Gauvin, & Katzmarzyk, 2009). As individuals develop into adults, peers, workplace environment, community, and personal interests influence the type and amount of investment in a person's HC.

Grounded in Bailey and colleagues HC model (HCM; Bailey et al., 2012), this study seeks to increase our understanding of how adolescents perceive HC and how HC may be developed. The HCM model is comprised of six subscales including physical, emotional, individual, social, intellectual, and financial capitals (Bailey et al., 2012). In each subscale, capital is considered to be a resource that contributes toward a purpose, such as physical activity is an investment in capital for future health. Accordingly, the HCM lists 88 evidenced-based benefits enhanced by participation in physical activity framed by the six domains of HC (see Figure 1).

Even though HC is a complex behavior that is influenced by both environmental and personal characteristics, systemic engagement in physical activity as part of a healthy lifestyle increases opportunities to reduce obesity and death. Expanding our understanding of how adolescent HC relates to physical activity is important given its potential influence on public health.

The effects of K-12 physical education on HC are unknown. As such, assessment

of HC as a learning outcome of physical education and other points of intervention that provide opportunities to engage in physical activity (e.g., physical activity breaks during academic instruction, afterschool programs focused on physical activity participation) has merit. To date, there is no known assessment tool for measuring adolescent HC. Providing a framework to view both the aggregate components as well as the individual's total capital is key to finding at what age and which opportunities facilitate the development of HC. Administering a valid, reliable HC survey may reveal developmental markers that would assist decision-makers in educational systems, curricula developers, teachers, and coaches who are positioned to influence individual growth and group relationships, which are foundational assets necessary for increasing HC.

Investigating adolescent perceptions of HC and how that might be assessed was the focus of this dissertation that unfolded in three phases in an attempt to develop a valid and reliable survey that measures adolescent perceived HC. The final phase investigated how adolescent perceptions of HC might be influenced by school context, gender, and ethnicity.

During the first phase of this dissertation, a valid and reliable survey of adolescent perceptions of HC and its correlates was developed. This phase also sought to capture how teachers believed the students perceive HC. The second phase focused on confirming the constructs of the survey and how adolescents perceived HC through survey and focus group interviewing techniques. While the third phase examined how HC was perceived by gender, age, and ethnicity. Given the paucity of research among adolescents and the lack of a valid, reliable assessment tool, this study has worth.

REVIEW OF LITERATURE

Beginning with the original conceptualization of human capital (HC), which was initially economic, this literature review frames how HC evolved and the theories that are embodied within the current transformed scope of HC as a representation of the whole person. Discussion of Nike's HC Model (HCM) is also included as the foundational definition of HC given its relationship to physical activity and building assets in adolescents. Further, the whole child approach is explained and applied to this series of studies.

Traditionally, economists viewed HC through the narrow focus of education and training (Marimuthu, Arokiasamy, & Ismail, 2009). HC theory (HCT) suggested that education was an instrument to improve productivity and earnings. As a result, education was seen as an investment in both the individual and in society's development (Becker, 1976). There were shortcomings with this perspective and analysis, as evaluative processes that rely on education alone did not always accurately predict a person's professional productivity and success (McClelland, 1973; Mayer & Cobb, 2000). Broadening the view of predictors of success to include the qualities derived from the whole person, such as self-confidence, perseverance, emotional stability, and time management characteristics began to expand interpretations concerning the meaning of HC (Spence, 1973). The expanded definition of HC led to differentiated investments in education and training formulations because of the potential mediation effects on one's economic worth.

Despite the evolution of how HC was defined, the construction of HC remained largely behavioristic and did not reflect the complexities of human behavior, such as

agency. When people are motivated and prepared to act, such characteristics are acknowledged as agency (Brandstadter, 1998), which likely plays a role in the development of HC. Simplistic input/output belief models, such as the one constructed by Becker (1976), eventually gave way to include the idea of agency and the four underlying determinants of agency: (a) intentionality, (b) forethought, (c) self-reactiveness, and (d) self-reflectiveness that synergistically enable proactivity (Bandura, 2006).

Intentionality, which was unrepresented in Becker's input/output theory, describes people as active contributors, as opposed to simply bystanders in the environment. When an individual purposefully invests time and planning into a given interest, goal-directed behaviors are evident, particularly when one encounters a barrier during their pursuit of something. Intentionality gives behaviors and actions a purpose, whereas, forethought creates a visual representation of such goals.

Self-reactiveness or "links of thought to action" (Bandura, 2006, p. 165) involves metacognition, which contemplates one's actions and reviews the outcome generated. When self-reactiveness transpires, it creates a conscientious awareness and understanding of why one engaged in the behavior. Thus, when individuals exhibit agency, it places them in the ecological center of change as a producer of their development (Larson, 2000; Theokas & Lerner, 2006; Pittman, Irby, Tolman, Yohalem, Ferber, 2011). Although education has its value, exhibiting agency facilitates adaptation and reconfigures new content and experiences more fluidly than when the agency is non-existent (e.g. the individual is told what to do and simply follows along; Welzel & Inglehart, 2010).

Self-reflection reviews a person's path to the achieved outcome by examining the

choices one made and the influence of the surrounding environment on the result. Determining what was effective and what needs improvement enables individuals to modify behaviors under their goals. Further, one's belief in his/her ability to meet expectations and demonstrate resiliency when facing challenges (self-efficacy) is integral to employing an agency.

The definition of HC has evolved over time, as the discovery of how an individuals' agency further shaped health behavior choices was studied. When people make decisions and choices, they are using an agency to determine their levels of HC.

Subcomponents of Human Capital

The historical evolution of the benefits of education, agency, and developmental assets are now more collectively referred to as HC. The HCM and interactions between the six categories of physical, emotional, individual, social, intellectual and financial capital serve as the foundational theory for conducting this research (Bailey et al., 2012; Nike, Inc., 2012). Under the *Designed to Move* HCM model, a broad description of each of the six aggregate components demarcated by many descriptive items exists (Figure 1). How each of the six subcomponents was operationalized for this study is explained.

Physical capital. Substantial change is nested within the developmental stage of adolescence due to drastic physical growth, maturation and the influence of the social environment. Physical capital can be represented as general motor skills, cardiovascular and respiratory fitness, healthy eating, and understanding of nutritional concepts (Glickman et al., 2012; Lee et al., 2012). In this study, physical capital was defined as adolescent perceptions of their general motor skills and cardiorespiratory fitness and PACER scores (a 20-meter shuttle run used as a field test measure of cardiorespiratory

fitness and required among all students enrolled in physical education in the state of Texas) were evaluated when accessible. FitnessGram® is a battery of five tests encompassing flexibility, muscle strength and endurance, and cardiorespiratory fitness (Plowman et al., 2006). Adolescents that attain general motor skills are more likely to engage in physical activity on their own time (Wallhead, Garn, & Vidoni, 2013; Ennis, 2011). Given that children and adolescents attend school for 10-15 years, schools have the capability to deliver consistent information and participation in healthy eating habits and physical education (Lee et al., 2012; Sallis et al., 2012; Pate, Wang, Dowda, Farrell, & O'Neill, 2006), building resources that they will rely on later in life (Sallis & McKenzie, 2013). Examination of motor competence levels found that increased competence led to higher levels of physical activity participation (Hands, 2008; Visser, Geuze, & Kalverboer, 1998). After school, sports and community events extend the lessons from physical education by applying them to new experiences, integrating confidence and expectation through repetition (Carson, Castelli, Beighle, & Erwin, 2014; Coe, Pivarnik, Womack, Reeves, & Malina, 2006; NICHD, 2004; Eccles & Barber, 1999).

Research has shown that physical activity participation decreases as children advance to adolescence while simultaneously, boys exhibit greater involvement than girls of the same age (Nader, Bradley, Houts, McRitchie, & O'Brien, 2008; Troiano et al., 2008). More research is needed concerning the scaffolding of support for girls due to the correlation of increased physical activity participation (Lytle, 2009). Socio-economic status (SES) and physical activity were also examined in children and adolescents finding that lower SES corresponded with decreased physical activity (Singh, Kogan, Siahpush,

& VanDyck, 2008).

Cardiorespiratory fitness and participation in aerobic or endurance activities might be one of the best markers for health achievement. Individuals with high fitness have higher elevation of academic performance, attendance, concentration, health, self-efficacy, self-regulation, and social support (Veloso, Matos, Carvalho, & Diniz, 2012; Janssen & LeBlanc, 2010; Welk et al., 2010; Castelli, Hillman, Buck, & Erwin, 2007; Strong et al., 2005; Sallis et al., 1999) while experiencing low correlations with cardiovascular disease, diabetes, stroke and adiposity (Ortega, 2008; Pate et al, 2006). Assessment of adolescents' cardiorespiratory health through a self-survey and a treadmill test found normal weight youth fitness levels higher than overweight subjects, and one-third of the participants failed to meet cardiorespiratory standards (Pate et al., 2006). Moreover, participating in physical activity and fundamental motor skills during childhood and adolescence tracks to increased physical fitness in young adults (Stodden, Langendorfer, & Roberton, 2009). Research suggests that adolescents should attain 60 minutes of daily physical activity (CDC, 2010; USDHHS, 2008; Strong et al., 2005). Yet, globally, greater than 80% of adolescents fail to achieve the physical activity daily recommendations of 60 minutes (Hallal et al., 2012), leaving them susceptible to increased health risks such as heart disease, diabetes, and morbidity (Lee et al., 2012; Janssen & LeBlanc, 2010). When viewing girls globally, the number jumps to 95% failing to meet the recommended guidelines of 60 minutes of daily physical activity (Hallal et al., 2012). Indeed, a recent national survey of American youth found 14% of them inactive, 48% with no physical education in school, and over 30% participating in a minimum of 3 hours of daily screen time (computers or television), while some youth

were active sporadically, none met the daily requirements of 60 minutes of physical activity (NASPE, 2012). As such, opportunities to achieve physical capital should occur before, during, and after the school day involving families, communities, and schools seeking to develop the whole child. Health awareness and fitness are vital components in adolescents' lives. However, there is little evidence proclaiming the achievement of health-related fitness (Sallis et al., 2012).

Providing opportunities to participate in physical activity throughout the day multiplies the chances adolescents will internalize healthy behaviors and maintain positive lifestyle choices. Physical capital has the capability to act as a booster in all aspects of a person's life, but only when physical activity is incorporated early and often while navigating different environments. The importance of gaining positive tangible assets is well documented and featured in each of the following subscales of human capital.

Whole School, Whole Community, Whole Child (WSCC). Recently, the WSCC has been promoted as a way to increase physical capital. The Institute of Medicine (IOM) suggested that one way to increase physical activity was to take a whole-of-school approach providing opportunities before, during, and after school for participation in moderate to vigorous physical activity (IOM, 2013). Findings from an initial study evaluating the Whole of School (WOS) approach across 178 secondary schools revealed that many schools are not offering physical activity opportunities before, during, and after the school day (Colabianchi, Griffin, Slater, O'Malley, & Johnston, 2015). Further, adult and peer support were noted as essential facilitators of adolescent participation in physical activity, reinforcing the value of implementing the Whole of School approach.

Engaging adolescents as active participants in their learning and health is essential to establish habitual healthy behaviors. Building on the eight elements of the coordinated school health approach, the WSCC model unifies leaders in the fields of education, school health, and public health, to improve learning and health in our nation's schools (Lewallen et al., 2015). In particular, the model format provides an approach where the messaging from schools and communities is similar, and it functions as a means to increase cognitive, physical, social and emotional development of adolescents and decrease risky behaviors. WSCC recommends day-to-day interactions before, during, and after school incorporates all stakeholders (community, family, school) involved in helping adolescents reach their potential. Instead of having a single champion or private experiences, adolescents experience positive, healthy behavior environments consistently in their daily routines. Facilitating these experiences maximizes adolescents' development of human capital.

Emotional capital. Historically, the emotional capital was embedded in the social and cultural capital with gender thought to be a determining factor. Emotions were believed to map on to structures (Bourdieu, 1990) dispositions bound to social groups or collective norms (Bartholomew, Loukas, Jowers, Allua, 2006) both shaped by and as a contributor to social norms. While Bourdieu viewed capital as cultural reproduction, Gendron thought emotional capital possessed the power to increase competencies in social, financial, and personal realms by acquiring desirable emotions and regulating undesirable feelings (Gendron, 2004). Nowotny was the first person to officially coin the term emotional capital in 1981, even though she still viewed it as a social and cultural resource through the affective domain (Zembylas, 2007). For this study, emotional capital

will be discrete embodying self-efficacy and enjoyment.

Research reveals how physical activity amplifies self-efficacy and enjoyment within an emotional capital context (Sallis, Prochaska, & Taylor, 2000). As previously stated, self-efficacy considers a person's confidence in task performance, the perception of barrier navigation in the process and has importance in the building of agency. Incongruence in their beliefs (e.g. confident during easy tasks only) affects adolescent feelings of control and optimism towards future achievements (Scales, Benson, Roehlkepartain, Sesma, & van Dulmen, 2006; Bandura, 1997). Self-efficacy is highly correlated with physical activity among adolescents (Reynolds et al., 1990; Sallis & McKenzie, 1991). Examples of self-efficacy studies finding a correlation with physical activity include Biddle and Van der Horst, while Craggs' study found self-efficacy to be a determinant of physical activity (Biddle, 2005; Van Der Horst, 2007; Craggs, Corder, van Sluijs, & Griffin, 2011). An adolescent thrives if they believe in themselves, which in turn, motivates them to achieve expectations (Bandura, 2006; Chen, Martin, Ennis, & Sun, 2008).

Enjoyment was the second aspect of emotional capital identified through the HC survey and is sometimes harder to define as the meaning differs among populations and environments (Kimiecik & Blissner, 1998). Interestingly, adolescents and teachers alike found fun and enjoyment of great importance when surveyed (Ketteridge & Boshoff, 2008; Cothran & Ennis, 1998). Enjoyment of physical activity also promotes participation and helps to regulate positive and negative emotions while reducing anxiety and depression (Oaten & Cheng, 2006; Guszkowska, 2004; Paluska & Schwenk, 2000; Dunn, Trivedi, & O'Neal, 2001; Fox, 1999; Wankel, 1993). Investigation of the type of

physical activity supported sport education positively affecting fun and enjoyment (Wallhead et al., 2013; MacPhail, Gorely, Kirk, & Kinchin, 2008). Adolescence is a challenging time, creating a climate of positive physical activity and support leads to elevated self-esteem and mental health balance tracking into adulthood (Murthy, 2015).

Individual capital. Incorporating assets of integrity, responsibility, self-regulation, time management, and increased intrinsic motivation through physical activity encapsulates one's individual capital (Wandzilak, Carroll, & Ansorge, 1988). For this study, intrinsic motivation and self-regulation were investigated. Intrinsic motivation is defined as doing something because it is inherently interesting as opposed to receiving an extrinsic reward (Deci & Ryan, 1985). Feelings of competence usually achieved through interpersonal feedback and a sense of autonomy (e.g. believing his/her behavior led to success) reinforce and empowers individuals. Developing intrinsic motivation is often accelerated by social or environmental context that either encourages or diminishes its progress. Four studies found increased intrinsic motivation within the sport education model, an alternative instructional model that focuses and applies all of the possible roles of humans in sports (e.g. player, coach, referee, statistician), over adolescents who participated in a traditional sport activity (Cuevas et al., 2016; Moreno-Murcia, Gimeno, Hernandez, Belan-do Pedreno, & Marin, 2013; Power, Ullrich-French, Steele, Daratha, & Bindler, 2011; Fawcett, Garton, and Dandy, 2009; Spittle & Byrne, 2009).

Self-regulation perceives individuals as producers of their development, discerning when to initiate or inhibit activities, and adapt behavior in response to the environment to attain personally important goals (Moilanen, 2007; Karoly, Boekaerts, & Maes, 2005). Examples include utilizing agency through decisions to improve one's

health and reduce risk behaviors thus lowering health care costs (Bandura, 2005), or as simple as an adolescent decides to study for an exam instead of going to the movies. Adolescents select a goal, acquire the skills or resources necessary to attain the target, and persevere to reach the target (Zimmerman, 2000; Baltes & Baltes, 1990). Whether or not he/she meets the goal is reciprocal to the perceptions and actions that follow. Self-regulation was significantly related to the adolescent physical activity (leisure time) in a cross-sectional survey study (Matthews & Moran, 2011). Mediators of behavior, such as self-regulation, have relevance concerning long-term healthy lifestyle patterns and the 2010 Portuguese survey of health behavior explored this concept across three different groups of adolescents. Results found the sedentary group showed decreased self-regulation and intake of fruits and vegetables, the healthy group of adolescents displayed increased motivation and a healthy diet, and a group of self-identified mobile gamers responded similarly as the healthy group on psychosocial variables but differed in nutritional habits (Veloso et al., 2012). Behavior control as a determinant of physical activity of adolescents was also suggested in one of the few studies investigating 14-18-year-olds (Craggs et al., 2011). Internal assets such as commitment to learning, positive values, and prosocial behaviors are fostered through shared goals derived from a whole-of-school model embedded within communities (Scales, Benson, & Roehlkepartain, 2011; Sallis et al., 2012). Sport and physical activity place adolescents in unique situations fostering resilience and practicing character building leadership roles essential to future success.

Social capital. Physical activity participation has the potential to build networks and strengthen relationships between and among families, friends, and organizational

groups (USDHHS, 2008; Putnam, 1993; Coleman, 1988). Social capital is one of the most documented constructs of HC but is often combined with emotional and cultural aspects of the literature. Several studies posit the benefits social and emotional learning demonstrate for academic performance and attitudes (Zins, 2004), reductions in risk behaviors and emotional distress (Horowitz and Graber, 2006; Greenberg et al., 2003). Moreover, research suggests that failure to socialize is associated with poor academic performance (Guerra & Bradshaw, 2008; McEvoy & Welker, 2000). Some scholars define aspects of cultural capital (Bourdieu, 1986) within social capital believing that social capital may be inherited and education reproduces those status levels (Lareau & Weininger, 2003).

Social structures assist in bridging resources between individuals and groups and are a valuable instrument in gaining capital. One such structure is that of relationships between family, school climates, and community. Family support and communications set the expectations for adolescent behavior and interactions (Gutman, Sameroff, & Eccles, 2002). For example, if both parents are active, their children are six times more likely to be active than non-active parents (Singh et al., 2008; Moore et al., 1991). SHAPE America National Standard 4 emphasizes the importance of responsible personal/social behavior and research shows that friends and family support are correlated (SHAPE, 2013; Edwardson, 2010; Van der Horst, 2007; Biddle, 2005; Sallis, Prochaska, & Taylor, 2000).

Social, emotional learning is facilitated through caring school climates established with collaboration from parents, students, and teachers modeling positive assets such as cultural competence, connectedness, peaceful conflict resolution, valuing of others, and

expectations in a safe environment (Durak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Greenberg et al., 2003; Catalono, Berglund, Ryan, Lonczak, & Hawkins, 2002; Fletcher, Newsome, Nickerson, & Bazley, 2001; Roeser, Midgley, & Urdan, 1996; Lave & Wenger, 1991). Relationships established through teachers and adolescents increase motivation, enjoyment, and feelings of connectedness (Cox, Duncheon, & McDavid, 2009; Carlson & Hastie, 1997). Physical education and sport offer opportunities to practice conflict resolution by actively engaging the learner both in problem-solving and the lesson content e.g. sport ed model and teaching games for understanding (TGFU) (Siedentop, Hastie, & Van der Mars, 2011; Dyson, 2005; Kirk & MacPhail, 2002). Adolescents also experience the meaning of teamwork when participating in sport and physical activity promoting social skill development and problem-solving abilities (Tannehill & Zakrajsek, 1993).

Community relationships built during before and after school physical activities strengthen adolescent networks securing a sense of valuation underpinning empowerment (Billig, 2004; Carson et al., 2014). Examination of social influences on physical activity revealed the importance of community and group participation for increasing physical activity in Latina adolescents (Benes, Dowling, Crawford, & Hayman, 2016).

Adolescence is multidimensional in that peers rise as influencers of each other while interacting with their environment (Bronfenbrenner, 1993). Before adolescence, parents assumed a more prominent role, however during adolescent development, peers become the guide of status constructs and attainment. Social connections have been shown to influence physical activity and health reciprocated by health behaviors fashioning a person's friendships (Simpkins et al., 2012; Bronfenbrenner & Morris, 2006;

Harrison et al., 2011). Conflicts often arise concerning identity in adolescence as each evaluates his/her level of HC and the agency he or she possess to move between those levels. For example, girls sometimes view participation in sport and physical activity as affecting femininity, possible reductions in social status due to a lack of perceived femininity often impact their physical activity decisions (Azzarito, Solomon, & Harrison, 2006; Krane, 2001; Kirk, 2000).

Novak and colleagues surveyed high school students concerning social capital and found that males with high social capital regularly participated in moderate to vigorous physical activity while females with high social capital increased their overall physical activity (Novak, Doubova, & Kawachi, 2016). Given the deleterious effects of obesity due to physical inactivity, increasing social capital among adolescents may increase physical activity, leading to improved health status.

Research suggests that social capital has the potential to mediate income inequalities and health status because of the increased support system in place (Kawachi, 1997). Consistent, positive opportunities to engage in physical activity through the WSCC approach aid in demonstrating the value of inclusion/acceptance of all adolescents attempting to live a healthy lifestyle.

Intellectual capital. During adolescence assessments of cognitive abilities are performed in preparation for entrance into academia and the workforce. There has been debate surrounding policy and the importance of intellectual knowledge in education (NCLB act, 2001; ESSA act, 2015). While the No Child Left Behind (NCLB) privileged four core subjects, the Every Student Succeeds Act (ESSA) eliminates the four core wording and incorporates 18 additional subjects including physical education into a well-

rounded child philosophy. Investigation of physical fitness and academic performance since NCLB has found positive associations between them (e.g. cognitive skills, academic achievement and physical education), in addition to reporting that increased physical education time was not negatively related to academic achievement (CDC, 2010). Thus, contrary to prior beliefs that more time spent studying academics produces better learners, physical activity time does not interfere with cognitive learning (Hillman, Erickson, & Kramer, 2008).

To be consistent in the survey development, the intellectual capital was represented by adolescent academic achievement and concentration. Scales and associates have documented the substantial contributions of gaining developmental assets, notably significantly higher grade point averages are correlated with increased levels of assets (Scales et al., 2006). Physical activity improves academic performance, concentration, executive function, and memory (Hillman et al., 2009). Among adolescents, one study showed strongly related significance between fitness (FitnessGram®) and academic performance (Van Dusen, 2011) and another found positive correlations with school reported scholastic achievement and a cardiorespiratory fitness and muscle force and power (Dwyer, 2001). In addition, supporting evidence of aerobic fitness enhancing academic achievement among children exists (Pontifex, Saliba, Raine, Picchietti, & Hillman, 2013; Howie & Pate, 2012; Wittberg, 2010; Ericsson, 2008; Tomporowski, 2008; Coe et al., 2006; Castelli et al., 2007). Tremblay and colleagues found no association with academic achievement of sixth graders but utilizing a self-report method may have influenced the results (Tremblay, 2000).

Several studies examined attention and memory, as an essential process that

subserves learning, and its value with intellectual and physical activity of children (Haapala, 2012; Castelli, Hillman, Hirsch, Hirsch, & Drollette, 2011; Grieco, Jowers, & Bartholomew, 2009; Budde, Voelcker-Rehage, Pietrabyk-Kendzioma, Ribeiro, & Tidow, 2008; Hillman et al., 2008; Tomporowski, 2008; Mahar, 2006; Strong et al., 2005; Caterino & Polak, 1999). Attention falls under the umbrella of executive function and inhibitory control allowing an individual to select appropriate choices while suppressing other stimuli. The ability to concentrate and discriminate is essential in the cognitive development and thought to predict academic achievement (Diamond, 2013).

There is a lack of research in the 14-18-year-old age bracket, most of the research reviewed concerning physical activity and intellectual capital involved children in elementary school. While children and adults are well represented in the literature, a great deal more research on adolescent physical activity is necessary. Providing positive physical capital opportunities before, during, and outside of the school day is crucial to cognitive achievement and preparing the whole child for advancement in life.

Financial capital. Examples of financial capital within the environment deal with issues of access to equipment and facilities. While poverty potentially decreases access, schooling and community support help to mitigate the adverse outcome (Mirowsky & Ross, 1998). Adolescents participate more readily in physical activity when hardscape facilities are present near their community (McGrath, Hopkins, & Hinckson, 2015; Giles-Corti & Donavan, 2002) and decrease engagement when the area is unsafe to play, thus increasing the likelihood of obesity and cardiovascular disease (Molnar, Gortmaker, Bull, & Buka, 2004).

Benefits obtained as a result of physical activity incorporate increased job

productivity, morale, and reduced absenteeism and health care costs (Colditz, 1999). Reasons for missing school range from illness to social, emotional issues to a lack of support, however, physically active adolescents are found to be present more often than their unfit counterparts (CDC, 2013; Welk et al., 2010). As previously stated, gaining physical capital has the potential to reduce social and emotional issues while creating new strands of support and healthy lifestyles among adolescents. Similar results occurred when Blair and associates compared participants and non-participants in an intervention study for adults finding that increased fitness was associated with less absenteeism from work (Blair et al., 1986). Another study showed that increased fitness related to increased job performance and the subjects with increased cardiorespiratory capacity able to compete for a larger quantity of work (Pronk et al., 2004). Although chronic absenteeism is often associated with low-income areas and academic achievement (Balfanz & Byrnes, 2012), studies investigating socioeconomic status (SES) found that participation in physical activity increased attendance (Benson, Scales, Leffert, & Roehlkepartain, 1999; Scales 2005; Sesma & Roehlkepartain, 2003) while decreasing adolescent participation in risky behaviors (e.g. drugs) among urban youth (Putnam, 1995), unfortunately, some parents either refuse or are not able to fund participation (Hardy, Kelly, Chapman, King, & Farrell, 2010).

Health care expenditures are affected significantly by obesity among youth both in general office visits/prescriptive attention and hospitalization (Trasande & Chatterjee, 2009). Lindstrom and colleagues suggest that social capital (e.g. participation in collective groups among adults) may mediate income inequalities and increase physical activity during leisure time (Lindstrom, Hanson, & Ostergren, 2001). More studies are

needed to explicate these connections between SES and physical activity among adolescents. Financial capital can be observed as gaining economic resources, in effect, a physically active adolescent can attend school and work regularly, complete the tasks assigned, and accrue lower health care costs due to their improved physical capacity. Utilizing agency through self-regulation decisions to improve one's health and reduce risk behaviors is an example of how increased HC could lower health care costs. Adolescent physical activity opportunities prepare youth for future endeavors, thus, instilling positive health behaviors enhances their chances of success in school and the community.

When thinking of a person holistically, these aggregate correlates are mutually beneficial in attaining and fostering the well-being of adolescents through a WSCC approach. Implementing a single asset is unlikely to influence an adolescent's trajectory of success. However, increasing many assets maximizes potential positive outcomes. Research on the constructs of physical, emotional, individual, social, intellectual, and financial capitals has shown positive significant youth outcomes and when implemented, fortifies many developmental assets across diverse contexts (Lerner, Wertlieb, & Jacobs, 2003).

Health Belief Model

The development of the Health Belief Model (HBM) was predicated on the idea that one has perceived risk (e.g. getting cancer from smoking cigarettes) would influence behavioral decision-making (e.g. I do not smoke because smoking causes cancer), which has its roots in the rational choice theory. Because one is perceived HC may be influenced by their perceptions of health risk, the HBM was selected to provide

additional structure and understanding of how HC may be constructed and change over time.

Four of the tenets of HBM behavioral change are perceived risk, perceived severity of diminished health perceived benefits, and perceived barriers resulting from the action (Glanz, 2008; Green, 2014). Perceived risk establishes the level of personal susceptibility to a disease or condition thought to be detrimental. A person may ask him/herself, what are the chances that I will contract cancer from smoking cigarettes?

Perceived severity or diminished health as a result of contracting the disease refers to the individual's perceptions of the likelihood of consequences (e.g. death, disability, social disruptions).

Perceived benefits concern a person's belief in the prompts to adopt the health behavior in response to the disease or impairing condition, such as questioning the feasibility of a certain action resolving the disease.

Perceived barriers to implementing the recommended health action involve individuals weighing the benefits in comparison to the disadvantages (e.g. expense, pain, inconvenience).

The four principles of the HBM, along with self-efficacy, support the idea of utilizing agency to effect change in behaviors. Self-efficacy supports agency by using one's perceived confidence to influence the outcome of events as demonstrated by human motivation, achievement, and emotional well-being in a particular circumstance (Bandura, 1997, 2006). Increasing an individual's self-efficacy is a fundamental component to engaging in the agency, promoting the production of positive health behaviors (Rosenstock, Strecher, & Becker, 1988). People with low self-efficacy

demonstrate reduced effort and performance on particular tasks and specific settings (Eden, 1993). Because the HBM states that relevance, benefits, barriers, and self-efficacy determine specific outcomes and the variables are organic across the lifespan, mediation is sometimes challenging.

Confidence gained through experiences across the lifespan promotes the ability to navigate barriers, realize the benefits, and make connections between assets and potential outcomes. Identifying relevant and efficient assets to achieve these behavioral changes would advance the progress of reducing adolescent risk behaviors and transition the focus of the conversation to building the individual's strengths. Currently, models of risk prevention have dominated most discussions in social research dissecting the problem contrary to research on developing people's strengths (assets), which is only emerging. The HBM shifted the paradigm surrounding HC towards a more holistic view of positive youth development that acknowledges the strengths the individuals possess (emphasizing the advantages of health as opposed to the consequences of disease) stimulating discussion concerning the use of the risk prevention approach.

Acknowledging the potential developmental differences across the lifespan is important. Relevant actions that were successful in childhood may be ineffective in adolescence and adulthood due to changes in contextual environments and the growth of the individual. Research has shown that health behaviors track into adulthood (Malina, 2001; Eccles & Gootman, 2002). Therefore, engaging in developmentally appropriate opportunities is vital to enhancing adolescent strengths, in addition to promoting active participation in positive behavior development. Among adolescents, the HBM has been applied to better understand three primary areas: (a) prevention and risk behaviors

(tobacco use, unprotected sex and patterns of physical activity engagement), (b) adherence to medical routines (i.e. insulin monitoring), and (c) in clinical settings (i.e. alcohol and drug rehabilitation). Common practice to minimize risky health behaviors among adolescents is to build their developmental assets. Based on research in youth development and resiliency, 40 research-based developmental assets help adolescents become caring, responsible adults. The notion of having assets is simple: the more assets adolescents have, the less likely they are to engage in risky health behaviors (Benson & Scales, 2009; Eccles & Gootman, 2002). The youth development framework has merit because it is applicable from early childhood through emerging adulthood.

The HBM is being applied here because the identification of HC, as a summary of one's developmental assets, can assist both teachers and students in the prevention of risky health behaviors through the emergence of perceived HC. Specifically, such a qualification of perceived human capital can be used to dispel myths surrounding the meaning generation of HC. For example, some youth may think that HC is only about money and financial security, when in fact, the importance of social and emotional health is also valued. Although some adolescents may have misperceptions, there is unity in developing such a tool.

Developmental Assets

This dissertation was informed by the research findings associated with developmental assets or the building blocks of healthy human development (see http://www.search-institute.org/content/40-developmental-assets-adolescents-ages-12-18 for a complete list of the developmental assets for adolescents). Assets, particularly those present during adolescence, help to build or increase HC, increasing self-esteem and

facilitating the resulting growth of the whole multifaceted person.

Family structures have changed over the years leading to more emphasis on the whole child in various ecological settings. For example, the family unit may consist of a single parent, two parents, or a blended composition. Furthermore, adolescent roles have evolved from leaving home to work at an early age to longer transitions into independent adulthood (Settersten & Ray, 2010). Understanding how to meet the needs of youth (e.g., health, well-being, and everyday life activities) benefits everyone involved whether inside or outside of school settings. This HC study sought to develop an assessment tool that identified the aggregate components of an individual's HC within various contexts as well as their increasing level to support positive youth development.

Research has shown that elevated levels of assets correlate with higher academic achievement, positive health behaviors, social-emotional development, and resilience (Benson & Scales, 2009; Scales, Roehlkepartain, & Benson, 2011). Portraying an individual's well-being through the asset framework extends the HBM from a preventing risk format to a more comprehensive, descriptive approach attending to the multiplicative aspects and needs of youth. Developmental assets are integral to the positive growth of adolescents (Scales & Leffert, 1999; Scales et al., 2006), and many parallels can be made between the HCM and the power of asset development.

Given the importance of HC and the underlying developmental assets the generation of a survey to track how adolescents perceive HC and how such perceptions may change over time has many advantages. Among the benefits is an increased awareness of self, making connections and creating an action plan, forming a baseline that educators may use when preparing coursework, identifying areas of focus for

schools, communities, and parents to integrate both individually and collectively, and general discovery knowledge regarding adolescents.

Development of a Human Capital Survey

Assessment is one method of measuring the progress of an individual or group, documenting a snapshot of the developmental process. Educational assessment traditionally measures skill acquisition, attitudes, and beliefs through a variety of methods providing an evaluation of curriculum implementation and population comparisons. In both education and across the lifespan, the ability to quantify perceived HC has implications for learning experiences within the curricula as well as for planned auxiliary opportunities presented through the community. Knowing the level of achievement in both the aggregate areas and the total level of HC benefits both the educational process and the individual growth of adolescents. Further, by including the six subscales of the Designed to Move HCM (i.e. physical, emotional, individual, social, intellectual, and financial), the survey could identify each developmental asset is being perceived.

HC and the developmental assets framework are parallel in that both promote the building of positive assets among adolescents instead of relying solely on the negative frame of risk prevention strategies. Building assets both ecologically (external) and individually (internal) permeates the adolescent's environment systemically strengthening the individual's opportunities to create HC. Also, the asset framework's indicators are embodied in some form within the HCM. Education provides a capability to deliver opportunities during and outside of the school day as a way to build assets. Utilization of the HCM lens allows collective visualization of HC factors and

collaboration on the best course of action for development in adolescents. Since there is no known valid, reliable assessment of HC among adolescents, this series of research studies sought to develop that tool as a means of addressing gaps in the literature and quantifying adolescent HC for practical applications, such as the whole approach to providing opportunities to be physically active.

Purpose

The purpose of this dissertation was to compare the perceived human capital (HC), as a set of positive assets, among adolescents and the influence of educational experiences on the development of HC. Secondarily, this research will investigate the predictive characteristics of individual characteristics such as gender, age, and context on perceived HC.

Research shows that the negative framing of problems such as risk prevention is not effective on adolescents (Bigman, Cappella, & Hornik, 2010). Building positive assets through the HCM framework has the potential to mediate HC, and this study sought to uncover correlations between the physical, emotional, individual, social, intellectual, and financial domains. Due to the paucity of research on HC and adolescents, in particular, this study is both timely and warranted. Moreover, to date, no study has explored the effects of specific educational experiences on HC.

Examining the determinants of HC and how those constructs affect adolescents was facilitated through three historical studies. This three-phase study of survey development begins by identifying how teachers attempt to build HC in adolescents as a means of building a bank of survey questions and establishing content validity. The second phase investigates how adolescents perceive HC and confirm the survey validity

and reliability. The final phase of the study identifies how HC may differ by gender, age, and context.

This HC survey is the first known quantification of the HCM. Hence, the knowledge and awareness gained from this study will advance the research and stimulate future questions concerning the development of HC and the applicability of an individual's environment and private assets in its formation.

Research Questions and Hypotheses

Three research questions were investigated across the three phases of the research study. Each research question and the corresponding hypothesis are listed in this section.

1. According to teachers and teacher educators, what is HC and how will adolescents perceive it?

   Hypothesis: Because teachers have just recently been familiarized with the term HC, I anticipate that their definition may be unclear or narrow in scope. Discussion may reveal that the teachers and teacher educators are utilizing some aspects of human capital but may be unaware of opportunities to engage in HC development. Further, since HC is a new educational initiative and the teachers and teacher educators in this study are considered early adopters, they may demonstrate unintended adaptations of HC.

   Hypothesis: It is anticipated that teachers and teacher educators believe that they can positively increase adolescents' perceptions of HC, with instruction.

2. How do adolescents perceive HC and its constructs?

   Hypothesis: Because the HC model has just been developed as an explanatory theory, I anticipate that the greater the rate of participation in physical activity the

more likely an individual perceives his/herself as having greater aggregate and total HC. No known measurement exists and accordingly, I believe adolescents will have an awareness of and firm conviction of specific subscales of HC; however, they will have had little experience with considering capital collectively.

Hypothesis: It is anticipated that physical capital will be the most prevalent for two reasons: (a) it is the most concrete construct to identify and (b) it is among the easiest to develop, given that most adolescents have opportunities to participate in physical activity (e.g. enrollment in physical education, participation in athletics and marching band). The contribution and assessment of emotional, individual, social, intellectual, and financial capitals are less clear than physical capital. How the environmental, social and internal assets relate to each other, may determine which and how much of the HC is developed.

It is anticipated that adolescents will perceive HC simplistically based on physical, financial and perhaps social traits. Adolescents' perceptions of HC may also be higher in individual areas without connections made between capitals and reciprocal effects.

3. How does perceived HC vary by gender, age, and ethnicity?

   Hypothesis: I anticipate that adolescents value physical attributes, caring attitudes, participation in clubs and teams, financial status, intellect, and social status/skills in varying degrees as they age. Demographically, I anticipate differences in the extent of value for these characteristics coinciding with their urban or rural environment, the makeup of their family unit, ethnic background, self-efficacy and community connectedness.

Study Significance

Having an awareness that physical inactivity is increasingly diminishing the physical and mental health of adolescents is the first step to systematic behavioral change. Positive, self-efficacious individuals exemplify higher HC and are less likely to engage in risky health behaviors (Schmitt-Rodermund & Silbereisen, 2008). Therefore, assessing where individuals are in the developmental process is vital to analyzing what interactions are occurring and how those may be employed for future success. Evidence suggests that physical activity enhances many aggregate aspects of the HCM. However, it is unclear whether physical education opportunities alter the development of total HC. Identifying the determinants of HC perceptions and adolescents' total capital would allow a deeper investigation into best practice methods for developing HC. Consequently, this study adds to the holistic development of adolescent HC research and probes deeper into the questions surrounding physical education's role in that development.

Researcher's Positionality

Teaching physical education and coaching for 31 years in elementary, middle and high schools has given me great opportunities to view and develop adolescent HC. I was able to see firsthand many differentiated experiences that a pedagogue creates for students both within and outside of the school day. My life experience coupled with these antecedents, were advantageous as I began my doctoral studies. Building my HC through research and education has enabled me to view the process of HC development through a different lens. All of these tools are embedded within this study of adolescent perceptions of HC.

METHODOLOGY

Since there is no known existing method of assessing adolescent perceived HC, as such, the primary purpose of this study was to develop a tool to track adolescent HC from late childhood to emerging adulthood. This section provides a justification of the methods utilized in this study. The data collection methods are described by study phase and research question.

Development of Human Capital Indices and Scales

Authentic and accurate measurement of HC is grounded in trustworthiness, validity, and reliability of a given measurement for a target population. In this study, pre-adolescent and adolescent youth served as the target population, as a means of quantifying adolescents' current conceptions of HC as well as to provide baseline information for the design of interventions.

Trustworthiness involves questions of internal validity, reliability, and external validity, and is largely dependent upon the ethics of the researcher (Merriam, 2002). Internal validity is the congruence of the study findings with reality, while reliability refers to the ability to replicate the study findings. External validity posits the extent to which the findings may be applied to other settings (generalizability). Accordingly, this research seeks to minimize bias and establish a high level of trustworthiness so that this survey can be generalized to this age group.

Multiple constructs and sources of evidence are required to establish validity (Messick, 1995). Face validity, in this case, refers to participants viewing the adolescent HC survey and confirming that survey as a measure of HC. Content validity determines the relationship of the study content (items) and the constructs (domains). Content

experts from university and K-12 school settings examined face and content validity of the HC survey during roundtable discussions and interviews.

Another source of validity evidence involved assessing the degree to which the survey tool measured the constructs. The adolescent HC survey constructs include physical, emotional, individual, social, intellectual, and financial capital. Exploratory factor analysis was implemented to expose the structure of the variable constructs and confirmatory factor analysis verified whether the constructs of the survey were measured. Alternate validated tests can be compared to achieve the highest possible construct validity. However, no similar, singular assessment including all of the six domains of HC was found for comparison.

In addition to validity, reliability is necessary to demonstrate that the results of the study are repeatable. Reliability is the extent to which the instrument is free from error (consistency) either across respondents or administrations of the survey. Two of the most common approaches used in determining reliability are repeated measures (test-retest, parallel testing) and internal consistency (Kuder-Richardson formulas or coefficient alpha) (Mertens, 2010). In phase 2, this study utilized repeated measures whereby, the survey, was administered to a set of individuals, and after a waiting period, the same test was given to the same group of respondents. Internal consistency (homogeneity) finds the extent to which items on the instrument measure the same thing. Statistical options for determining internal consistency include Cronbach's coefficient alpha and Kuder-Richardson formulas and are performed after one test administration (Cronbach, 1951; Mertens, 2010). Cronbach's alpha is typically used during scale items (Likert) that have several response options while Kuder-Richardson is used for dichotomous (yes, no)

responses.

Survey development must purposefully confirm the validity and reliability which in turn lends support to a proposed theory, in this case, the HCM, thus corroborating why certain events may occur, instigating an effective change of an individual or program (gaining assets). Hence, the purpose of this study was to compare the perceived human capital (HC), as a set of positive assets, among adolescents and the influence of educational experiences on the development of HC.

Phase 1 Methods: Face and Content Validity

Since there was no known HC survey, particularly for use with adolescents, the researchers had to utilize general background information to confirm the face and content validity of possible the survey questions. Using the six domains of HC as the original structure, physical, emotional, individual, social, intellectual, and financial capitals, a bank of questions was created. This section describes how those questions were created.

Once approval from the Institutional Review Board of The University of Texas at Austin (#2014-03-0124) was secured, the study was enacted. The first phase of the research was intended to address the research question, "What is HC according to teachers and teacher educators and how will HC be perceived by adolescents?" by conducting multiple focus group interviews with teachers and teacher educators. The participants and procedures involved in three key events are explained here.

Phase 1: Participants

Twenty content experts from higher education and 17 public school teachers were participants in this phase of the study. The content experts from higher education had between 1 and 25 years of teaching experience in the subject areas of physical and health

education (age ranged from 24-60 years, 50% female, 50% White, 20% Asian, 15% Black, 15% Hispanic). All of these experts resided in a university setting and were either tenure track/clinical faculty (n=5) or doctoral students (n=15) who were currently working with teachers and students in public schools. These participants were selected because they contained specialized subject knowledge that informed the researcher's interpretation of the survey items, understood physical activity's role in developing youth, and were readily available.

The 17 public school teachers were K-12 physical education teachers (n=8, age ranged from 35-55 years, 63% female, 87% White, 13% Hispanic) and general education teachers (n=9, age ranged from 25-65 years, 55% female, 88% White, 22% Hispanic) who taught the subjects of Anatomy and Physiology, English, Foreign Language, Geography, Health, History, and Physical Education in high schools in central Texas. These teachers were selected because they possessed relevant knowledge of adolescents and expanded survey item viewing through general education instructors' perspectives, which increased the richness of discussions with the researcher and the ensuing survey refinement.

Phase 1 Procedures: Face and Content Validity – Teacher & Teacher Educators' Perspectives

Focus groups (conducted with higher education content experts) and semi-structured interviews (carried out with the K-12 teachers) were used to build a bank of possible survey questions and establish face and content validity, using the collective expertise of the 37 phase one participants. Due to the extensive nature of the HCM (see Figure 1), the goal of this initial data collection was to reduce the six foundational

constructs to items measurable using a Likert scale expressing the degree of agreement. Based on what adolescents think or do concerning HC, what adolescents experience within schools, and what was measurable, the six domains of HC were operationalized through the following elements: (a) general motor skills and cardiorespiratory fitness concepts, (b) enjoyment and self-efficacy as emotion, (c) intrinsic motivation and self-regulation (individual characteristics), (d) social support, (e) intellectual capital explored academic and concentration factors, and (f) financial capital items related to health care access and absenteeism. Using existing literature, previously validated surveys for adolescents examining other health constructs, and the results from the focus group and teacher interviews, the researcher created a bank of questions under each construct. For example, the question "I find ways to incorporate 60 minutes of physical activity in my daily routine" represented physical capital. "I often miss school because of illness," represented financial capital, and so forth. This bank of questions was used during the expert focus groups and teacher interviews.

Focus groups. Twenty content experts were convened in two group sessions designed to first, make individual judgments about some sample questions and second to achieve consensus about those judgments. Each expert was asked to take a sample question from the generated list and match it to the HC construct. After working individually, the experts then discussed his/her responses within the larger group. If there was a consensus about what construct the question aligned with, the question was retained or slightly modified for clarity. However, if there was disagreement about which construct the question was best aligned with, or if the experts believed the question fell under two constructs, then the question was eliminated. The experts provided sample

wording for the revised questions, revised text of the questions, and provided additional questions. This experience lasted one hour and was repeated two times with the same groups of experts. In the second round, the researcher asked the experts to pay particular attention to questions that were revised or added. The experts were also invited to consider how adolescents may interpret the questions (e.g. as social or intellectual). This process resulted in the creation of 30 questions spread across the six constructs. Initially the questions were organized by construct, as follows: physical (n=5), emotional (n=5), individual (n=5), social (n=5), intellectual (n=5), financial (n=5).

Interviews. Physical education teachers (K-12) met for one hour to discuss their HC knowledge through an interview format focused on their developmental observations of children across different grade levels. Survey items were distributed and evaluated for alignment with the constructs and applicability to the adolescent population. The majority of the teachers in this sample were more aware of aggregate HC components (e.g. intellectual, physical, social-emotional) than the interplay of all six constructs on total HC.

High school teachers' knowledge of adolescent HC was secured through audiotaped semi-structured interviews lasting approximately 30 minutes each. During the interview, teachers were asked to share their observations and perceptions about how physical activity affected HC development, behavior patterns they might have noticed, and the classroom climates they developed (in support of HC). During this time the teachers were also asked to view a bank of possible HC questions for content validity and to provide their observations of adolescents.

Questions for the interviews and focus groups were pre-planned and ordered

(scripted), however, time was allotted for deviation from the script if the situation warranted, thereby, enhancing the richness of the researcher's interpretation of the respondent's perceptions (Appendix A). Qualitative data derived from these interviews were transcribed and coded for discrete statements one interview at a time. The resulting codes were operationalized (Appendix B), audited and reviewed for patterns to emerging themes.

Once the interview data and all feedback were integrated into the HC questions, an initial full survey was confirmed by both groups of experts. The HC survey comprised 36 items across the constructs of physical, emotional, individual, social, intellectual, and financial capitals following the teacher interview input (Table 1). Decomposition of the human capital components after Phase 1 found: physical (n=7), emotional (n=6), individual (n=6), social (n=6), intellectual (n=6), and financial (n=5), and certification statements concerning physical education participation credit.

Data analysis. Phase 1 utilized qualitative data from content expert focus groups and teacher interviews in building the bank of HC survey questions. All interviews were audiotaped and transcribed for analysis. The researcher identified categories and concepts in the data, noted which members and what text formulated the concepts (open coding) and then compiled a list of operationalized codes. Following further examination of the text, patterns were observed and collapsed it into distinct congruent themes (Table 2) (Biddle, Markland, Gilbourne, Chatzisarantis, & Sparkes, 2001). Data were also triangulated through peer debriefing, member checking, and auditing to ensure internal validity and dependability. Data reduction occurred by the researcher identifying codes, patterns, and themes within the interviews.

Phase 2 Methods: Construct Validity and Reliability

In this phase, survey results, repeated measures, and adolescent focus groups were conducted following the structural content development. Quantitative results from the survey were evaluated to inform its refinement and to investigate relationships between the constructs. Repeated measures were used to assess the reliability of the HC survey by administering the test twice on different occasions to the same group of respondents. Focus groups were convened to ascertain adolescent viewpoints concerning HC and the relevance of the survey constructs. The second phase of the study was intended to address the research question, "How do adolescents perceive HC?" (define, aggregate levels, correlations) by conducting focus group interviews with adolescents and exploratory factor analysis. Descriptions of participants and procedures during the adolescent perception investigation are explained here.

Phase 2 Participants

Adolescents participated as respondents to the HC survey, verified reliability via test-retest, and joined focus groups following the survey. Surveys were administered to fourth-year adolescent respondents (n=333, aged 18, 40% female, 80% White, 10% Hispanic, 5% Asian, 5% Black). All respondents were located in central Texas and completed the survey during the school day. A sub-group of 38 adolescents were selected to fill out the survey a second time. Adolescent participants were also chosen to contribute to one of two adolescent focus groups (n=10) containing varying levels of extra-curricular activity identification (50% high levels of participation). These participants were selected as samples of convenience providing baseline data concerning adolescent HC perspectives.

Phase 2: Procedures: Construct Validity and Reliability – Student Perspectives

The survey, focus groups, and the researcher's notes were used as the primary data sources in phase 2.

Survey. Given that the HC survey was the first known quantification discovering the factor structure and internal reliability was paramount to continuing research. The six subscales of HC were formatted on a five-foil Likert, self-assessment scale ranging from strongly disagree (1) to strongly agree (5). A minimum of 6 items per factor were contained in the survey, for example, "I believe I can succeed." (emotional capital), and "I exercise or lift weights to strengthen and tone my muscles twice or more per week." (physical capital). Four items were reverse worded in the survey, financial item 18, individual items 23 and 35, and social item 28, these item scores were reversed when added to the database. All adolescents completed the 36 item perceptions of HC survey during the school day. Surveys were administered in multiple waves with adolescents anonymously depositing the completed surveys in a bin for pick up by the researcher.

Reliability was confirmed through test-retest whereby one group of adolescents enrolled in summer school physical education completed the survey on two different occasions. Internal consistency of the summated scales of the HC constructs found Cronbach's alpha coefficient indicated good internal consistency ($\alpha > 0.80$).

Focus groups. Since attempting to develop an adolescent HC survey was the goal, learning the context of how they perceived the six HC constructs benefitted survey revision. Two groups of five adolescents discussed HC knowledge, both aggregate and composite, physical activity's role in HC development, and observations of how their school enhanced opportunities for HC growth (Appendix D). Following HC discussions,

each adolescent was given a survey and asked if the questions aligned with the constructs, seeking consensus among the group. Focus groups interactions lasted approximately 40 minutes during which the clarity of the questions and relevance to adolescents was examined within the groups' discourse and noted by the researcher. Subsequent codes (Appendix B) were collapsed into four themes including knowledge (general and HC), connectedness (rapport, support, and teamwork), adolescent backgrounds (identities and investments), and construct interdependence (see Table 3). Adolescent perceptions gleaned from these focus groups reinforced what was relevant to them regarding how they viewed the survey items and aided the researcher in revising the survey.

Data analysis. Phase 2 employed a mixed methods approach with adolescent focus groups and statistical analysis of the survey data. Qualitative data from adolescent focus groups were audio taped and transcribed for analysis. Utilizing open coding, the researcher identified categories and concepts in the data, noted which members and what text formulated the concepts, and compiled a list of operationalized codes and collapsed them into congruent themes. Data were also member checked by participants and audited by an outside source to ensure trustworthiness and dependability.

Following survey administration, all quantitative analyses were performed using SPSS v. 21and α was set at 0.05. Construct validity was examined using exploratory factor analysis (EFA) to establish the structure of the HC model. EFA analyzed correlations between responses of participants to determine the items, as well as if the construct could be measured by the subscales (Meyers et al., 2013). Performing EFA found the alignment of six HC factors: physical, emotional, individual, social,

intellectual, and financial. Interpretation of the pattern matrix involved 1) establishing whether each item had a "home" factor, 2) were items loading as expected, 3) does each factor make sense (identify common themes among items), and 4) were the factor loadings >0.7. During the factor analysis process, pattern matrices were examined for loading highly on the factor; goals were >0.5 and average >0.7. Kaiser-Meyer-Olkin (KMO) >0.8 (actual 0.814) and a significant Bartlett's test of sphericity (0.000) displayed sample adequacy. Additionally, the N/k (cases/items) ratio was >9:1for this pilot study. In determining the number of factors to retain, an eigenvalue ≥1was the cut point used for the factors accounting for as much of the variance as possible and scree plots were also viewed as interpretation. Items were removed one at a time and then re-run to confirm. Principal Axis Factoring was the extraction method used in conjunction with Varimax as the rotation method. Selection criteria involved discriminant validity, seeking items that strongly loaded on target factors, eliminating cross-loads >.3 while maintaining >.2 between variables.

Phase 3 Methods: Construct Validity, Reliability, and Contextual Variations

Administration of the revised survey from Phase 2 confirming its measurement of the HCM constructs of physical, emotional, individual, social, intellectual, and financial capitals occurred across different contexts. Reliability of the revised survey was also confirmed followed by the reduction of survey items from 38 to 27. The third phase of the study was intended to address the research question, "How does perceived HC vary by gender, age, and context?" by conducting exploratory factor analysis, confirmatory factor analysis, regression analysis, and univariate analysis of variance.

Phase 3: Participants

Adolescent respondents (n=979, Mage 16, 40% female, 41% White, 37% Hispanic, 12% Black, 7% Asian, 35% Free lunch) completed the HC survey (Table 6). Participants in Phase 3 were enrolled in athletics, dance, marching band, physical education, and regular education courses and attended various high schools in central Texas and Illinois. Repeated measures of adolescents (n=93, Mage=15.7(SD1.22), 48% female, 88% White, 4% Black, 4% Hispanic, 3% Asian) transpired, and all Phase 3 respondents completed the 38 item HC perceptions survey during the school day. A convenience sample across demographics such as ethnicity, socioeconomic status, and various course environments was selected to elucidate contextual factors for a better understanding of environmental differences further.

Phase 3 Procedures: Construct Validity and Reliability and Contextual Variations – Student Perspectives

The revised survey, targeted focus groups, and demographics were the primary data sources in phase 3.

Survey. Phase 3 utilized the second iteration of the HC survey for exploratory factor analysis evaluation and confirmatory factor analysis. Demographics were broadened to include course enrollment, ethnicity, and free lunch status to investigate varying contextual effects. Because some of the Phase 2 survey items were deleted and modified, the structure needed to be re-examined and confirmed as loading on the HC factors with a goodness of fit. Reducing each factor to roughly three variables with high factor loadings was the goal. For example, “I prefer to be alone,” was modified to “When I have free time, I prefer to be alone” representing social capital, as a result of the adolescent focus group discourse. Following Phase 2, 12 survey items were removed, 2

slightly modified, and 13 either significantly amended or added as new items. Four items were reverse worded in the survey, financial item 24, individual item 35, and social items 28 and 37, these item scores were reversed, given the wording, when added to the database. Similar to Phase 2, construct and discriminant validity were examined during exploratory factor analysis and confirmatory factor analysis. Internal consistency was confirmed for the second iteration of the HC survey by administering the survey twice on different occasions to the same group of respondents. Adolescents from athletics confirmed reliability during boys cross country, football, and volleyball courses.

Contextual variations. Following the structural content development, quantitative results from the survey were evaluated to inform its refinement and to investigate relationships between the constructs, demographics, and courses affecting HC. Specifically, identifying predictors of aggregate and total HC through multiple regression analysis and comparing the means of variables through analysis of variance (ANOVA) to determine where and when adolescents display greater amounts of HC. Diversified environments across subjects may produce independent levels of HC among adolescents and knowing which course, gender or construct affects HC supports possible interventions.

Data analysis. Phase 3 utilized quantitative analysis to investigate how adolescents' perceived HC varies across gender, age, and contextual variables. The model was confirmed through CFA after survey administration with the root mean square error of approximation (RMSEA), comparative fit index (CFI), and the standardized root mean square residual (SRMR). Survey items were reduced from 38 to 27 across 6 factors of HC.

Predictors of HC were examined through multiple and hierarchical regression analyses using the aggregate component variables of physical, emotional, individual, social, intellectual, and financial capitals, age, gender, course enrolled, ethnicity, and SES (denoted by free lunch) on total HC. Comparing the means of those variables through ANOVA would identify when and where HC levels are elevated.

RESULTS

The results are presented by data collection phase, by data source used in the phase and by research question.

Results Phase 1

Focus groups and interview transcriptions were gathered to answer research question 1) What is HC according to teachers and how will adolescents perceive it?

In general, the content experts from higher education were supportive (100%) of examining adolescent perceptions regarding HC, first, because this is current terminology being applied in the field (90%). Second, they were supportive because they intuitively believed that positive physical activity participation might be linked to such constructs (80%).

Content experts. Because the concept of HC was relatively new, the content experts were concerned that teens might not know or understand the definition of HC (90%). Initial discussions began with higher education and physical education content experts shaping the tenor of the construct items with their knowledge of physical education and the applicability to teenagers. Public school teachers then discussed how or if HC was incorporated into their classrooms and schools as well as their perceptions of survey item relevance to adolescents. As a result, a 36 item Likert scale survey of human capital was developed across the constructs of physical, emotional, individual, social, intellectual, and financial capitals for administration to adolescents. The expert review pointed to bodies of research, made suggestions concerning retaining or removing items based on classroom experience, asked for clarification in terminology, and relevance to adolescents. For example, simple word modifications included substituting the term faith-

based group for church and delimiting participation on at least one sports team to participating in at least one recreational or competitive sports weekly. Teacher educators also suggested removing the items concerning body weight and having a smartphone (dichotomous answer).

Public school teacher focus groups. One hundred percent of the public school teachers interviewed disclosed that they felt their HC influenced how they taught and that they believed they developed HC in the adolescents with whom they interacted. Formative elements from their backgrounds (family, community, schooling) whether positive or negative, referred to as self-capital, affected their reasons for selecting teaching as a career and the role adolescents play in their teaching strategies. All teachers agreed that "fun" was part of their reason for teaching, they enjoyed working with adolescents and wanted to guide/challenge them. Background influences were prominent for most interviewees entering the profession, for example, teachers 1, 5, and 8 stated,

> " I had two parents that were teachers and I loved school" (teacher 1).
>
> "My Dad was a teacher/coach/principal and I played softball and basketball in college, it's fun working with students and watching them grow" (teacher 5).
>
> "Pick something you love and do it for a living, that's exactly what I did, I ran as a youth in high school and college and I want to share that (experience) with young people" (teacher 8).

Public school teachers also unanimously acknowledged the importance of physical health in an adolescent's life and saw correlating patterns with individuals high in physical capital being high in other areas. After rereading the interview transcriptions, distinct statements were inductively coded and the emergent themes were collapsed due

to the number of codes (12) and reduced into the four themes: (a) *Developing HC knowledge, (b) Supporting the big picture, (c) Human capital, and (d) Power of opportunity.*

Four themes and multiple subthemes emerged from the data that describe the research questions concerning teacher perceptions of HC and how it relates to adolescents. Samples of information given in the interviews are located under each theme.

Developing HC knowledge. Teachers interviewed felt that they struggled with the balance of delivering their academic content to all students. All teachers felt expectations and relevance were vital to adolescents applying the subject knowledge, examples of this can be found here.

"My subject is super crazy fact heavy... so I try to get the kids to use (apply) the facts" (teacher 3).

"Of course I want them to learn the content of what I'm teaching them, but I also want them to learn how to be responsible adults, lifelong learners...take what we're learning and apply it somehow to their life, either now or in the future" (teacher 2).

"My classroom is TEKs driven (standardized tests), certain things they need to know when they walk out of my classroom...some kids just reach the minimum and stop, I want them to set personal goals...be the best you can be (not the minimum)" (teacher 8).

A teacher with 5-8 years of experience stated, "My knowledge has changed since I started teaching, I used to have one standard for everyone, now I tailor my teaching to all kids on the spectrum."

Upon learning the meaning of HC and its resulting framework within the HCM,

teachers verbalized how HC corresponds to their image of developing the whole child. Nine of 9 teachers confirmed that developing the whole child is important and wished school settings conveyed the importance of social-emotional and physical factors in addition to intellectual achievement. Examples of teachers becoming self aware of the meaning of HC include, "These six categories are a good representation of a person as a whole and that they all feed into what makes us an individual...interesting model...(need to show all teachers) it's a reminder that as a teacher we're not just teaching a subject matter, we're developing someone as a whole, and this breaks it down" (teacher 4); "Finding a way to work that (HC constructs) into other classes could be one way to support their development" (teacher 2); "I think teaching the whole child is a really important goal"
(teacher 3).

Supporting the big picture. Interviews highlighted the potential of the HCM to foster relationships that develop the whole child. Connecting with adolescents can be challenging if they know teachers care about them, they work harder, so establishing a framework of trust and communication within the classroom is beneficial. All teachers valued relationships with their students and considered it one of their teaching strategies for learning. The importance of peer relationships was also discussed within pedagogical strategies to cultivate mastery of subject knowledge. Teachers felt some tension between "getting to know" their students and delivering content but recognized the importance of relationships, see below.

"You spend a lot of time with these kids...every day, so you do build these relationships and I think for me to teach effectively, I have to have these relationships...they're people, not just students" (teacher 3).

"I think you take that idea of social wellness into the classroom...make kids feel like they can accomplish the task at hand no matter what the starting point...allow for make-ups, or hey, why don't you come talk to me about it (things going on with them)" (teacher 2).

Teacher 8 challenged himself every day to talk to all of his students, "I bounce around the room and try to talk to every kid...hopefully I know what each one of them is interested in, I have 120 kids but finding something in common, spending time developing a relationship...trust develops."

"What's nice about languages is a lot of what we teach is a personal communication, conversation, partner work (interactions) I let them know that I want to support them and I believe in them, it helps them" (teacher 1).

Teacher 5 noticed, "When they (students) are not part of a group, it affects them...everything is about the here and now with them...they don't see the future...they are just trying to fit in socially (peers)."

The rapport between adolescents and educators and student to student evolves daily through the classroom climate established (Goodenow, 1993).

Human Capital. Findings across interviews and focus groups suggest that knowledge surrounding the tenets of HC is lacking in schools. Teachers reported no prior knowledge of HC but felt the top three aggregate components addressed within teaching were physical, intellectual, and emotional. Interviewees recognized the value of HC (once explained) and connected it to developing a well-rounded, whole child. Moreover, all teachers stated that everyone in their school (district) would benefit from professional development concerning HC both for themselves and their students (how do we value

students and other programs within our school). “School is a huge social aspect for adolescents, we (teachers/programs) are all investing in students, let’s see how it all ties in, how can we create the best student possible” (teacher 8). Teachers felt that not enough attention is given to all aspects of HC, accountability for intellectual deliverables drives their content. All teachers stated that the physical aspect should be incorporated daily, however, 2 teachers stated that “someone else” takes care of that, I just teach academics. Developing emotional capital was acknowledged by 6 teachers and 2 teachers stated that conscious preparation for emotional capital should be added to their classrooms. Insights from teachers on HC can be found here.

“Finding a way to work health and physical education into other classes (support students’ development)...you can’t be financial or emotionally stable if you’re not physically stable, you have to have balance...it’s our job as teachers to show those connections (e.g., kids may know they didn’t eat or sleep well yesterday and today they don’t feel well, but they don’t always make the connection)” (teacher 2).

The next two teachers spoke about things happening as byproducts of their teaching and after discussing HC would like to be more mindful of incorporating HC, “I try to be the person I want my students to be (model honesty, integrity, respect, responsibility)...it’s like time management, I set things up so students learn that but I don’t start off with a specific goal of time management, it’s learned through the activity (byproduct)...my thing is emotion, knowing who a person is (students) is incredibly important to get my job done and is very rewarding for me” (teacher 3).

“This is actually pretty good, I could use this (HC), I have never really concentrated on developing the emotional side but I guess it’s a byproduct from building

relationships...my values rub off..it's not a conscious decision, but I'd say it's kind of wrapped up into who I am and how I teach...I plan things where kids interact and move around the room but I never thought of it as social development" (teacher 9).

"I think the six areas of HC are connected and not everyone comes in with the same experiences...their self-value isn't always high, I notice this with girls (expectations of perfection) if they fall short, having someone tell them it's ok (it's a one-time event, keep working) confidence... I can see the financial connections, but can the kids?...we have to explain the why (kids buy in)" (teacher 8).

"Adolescents higher in physical capital are higher in the other components of HC." "I think that all of these are tied together, and the expectations of the family and community help to shape what is important" (9 of 9 teachers).

Power of opportunity. The blending of quantitative and qualitative data indicate that increased adolescent opportunity is positively related to an individual's HC. All teachers agreed that involvement in activities outside the school day, whether school sponsored or not benefit adolescents. Adolescent backgrounds whether financial or experiential contribute to HC construction. Parents determine the financial stability (Yeung, Linver, & Gunn, 2002) of their children and the impact may be felt when enrichment activities require financial contributions. Moreover, nutrition and physical health are affected by financial instability and "If you're not physically healthy and fit, it makes the rest of your life really difficult" (6 of 9 interviewees). "If you're always in a state of injury or illness, it makes it hard to be stable financially, emotionally, socially, and intellectually (teacher 2). "They (adolescents) are completely dependent on their parents so they have no control over financial situations" (teacher 4).

"Being involved in something bigger than themselves (e.g. sports, fine arts, robotics, Spanish club) gives you a purpose" (all interviewees), and provides an extended family of people working towards a common goal. "Collaboration, time management, work ethic, dealing with adversity, self-esteem, and how to work with others are afforded more opportunities for development in extra-curricular settings (all interviewees)."

Nine of 9 interviewees stated, "Participants in extra-curricular activities seem to be higher across all capitals, more willing to take risks," "People involved in extra-curricular are more well rounded and will perform better in the real world."

"You get to choose your extra-curriculars (place yourself in a certain social environment) you don't get to choose which classroom you're in...these choices feed their perceptions of who they are" (teacher 2).

Access is a barrier for some adolescents, "Some kids are behind due to finances (lack of opportunities/pay to play)..don't have enough money for food, they're behind physically...kids may not have books at home (people modeling reading)..extra-curricular activities provide the ability to develop HC, kids that go home after school each day miss out on a whole potential aspect of their own development (miss out on building relationships) fall through the cracks (self-fulfilling prophecy)...I think a healthy person is going to do more than just go to school" (teacher 3).

Teacher 9 stated, "The vast majority of successful people today were involved in extra-curricular activities (teaches you time management, social skills, work in a group)."

"I think it gives you almost a better education (extra-curricular activities) you get a work ethic, goal setting, teamwork, expectations" (teacher 8).

"We have a Spanish club that helps give kids a place to go" (teacher 1).

Teacher 4 noticed a pattern among adolescents involved in extra-curricular activities, "Kids that are involved in extra-curricular activities whether it's marching band, dance, or sport tend to be more involved intellectually in the classroom (well-rounded)...they see the worth and value of all the different aspects of their life...we do role playing and scenario work in the classroom (moral development themes)."

"Our school provides many different opportunities for students to participate besides athletics, intellectual clubs, music, dance, it's important for kids to have a place to belong" (teacher 5).

Opportunities to feel connected to a group or community often begin through interactions in school environments (Harrison et al., 2003). Clubs and extra-curricular activities facilitate teamwork and personal/social responsibility (Sallis, Prochaska, & Taylor, 2000).

Summary of Findings from Phase 1. As expressed by the all of the experts in varying ways, HC is complex and influenced by a person's environment, activity, and lifestyle choices, as such, there seems to be merit in applying the *Whole School, Whole Community, Whole Child* (WSCC) approach. Attending to the multiplicative determinants of WSCC, e.g., promoting before, during, and after school participation in school and community events, as the frame for developing HC benefits adolescents. Establishing relationships between schools, communities, and families strengthens adolescent participation and accountability due to congruent expectations and opportunities. Volunteers from the community may lend their expertise to adolescents giving them a broader cohesive perspective as opposed to a singular voice of a teacher or parent. This type of community interaction is mutually beneficial because it is rewarding

to the volunteer who encourages them to continue mentoring enabling everyone involved to feel valued. WSCC employs a teamwork/collaboration approach (including all stakeholders) that besides being a necessary life skill, increases opportunities for adolescents to participate, belong to something, and be successful.

Teachers as Human Capital Developers. Teachers have access to adolescents each day thus increasing opportunities to strengthen individual growth and awareness of HC. Acknowledging how the backgrounds of both educators and adolescents influence the type and amount of HC were the first steps in the conception of HC during the interviews. Although HC was a new term, further decomposition allowed the teachers to relate HC to the WSCC concept and begin framing how they might incorporate pedagogical strategies in its implementation. Interpreting the recent composite term of HC while simultaneously reflecting on how or if their classroom offered opportunities for its development was challenging for 2 of the 9 teachers as they saw the HC concepts as byproducts of teaching because of the focus on intellectual properties. However, during the interview as instructional and grouping strategies were reviewed, the teachers realized that they were indeed cultivating HC and stated that they would be more mindful of HC in future lessons.

While financial investments may be out of an adolescent's control, personal investments in their education and surrounding community are within the realm of actionable tasks. "The idea of investing in yourself, material things like cars fade but education and health you carry with you throughout your lifetime" (all interviewees). Teachers felt that schools provide a framework for adolescents if they choose to take advantage and mentioned that they try to play an active role in the subsequent decisions

of youth. Because empowered youth utilize agency (Scales, Benson, & Roehlkepartain, 2011) creating classroom climates facilitating identity growth (self-perceptions) would benefit all adolescents (Eccles et al., 1993; Bandura, 2006).

In sum, teacher educators, content experts, and interviewees defined individuals with high HC as well rounded, displaying confidence, leadership, initiative, healthy behaviors, positive demeanor, support system, and resiliency to adversity. Valuing education was also described as indicative of high HC describing the person as a lifetime learner with the ability to question for clarity and problem solve. A few teachers discussed the quality of service as underpinning high HC, volunteering to help others, getting out of their comfort zone. Low HC adolescents were described as unsure of themselves, emotionally volatile, withdrawn, exhibiting unhealthy behaviors, poor financial management, and a lack of support.

Concerning adolescent perceptions of HC, teacher educators, content experts, and interviewees felt that knowledge of aggregate components of HC such as physical and social capital would be present but financial capital may be more elusive. Also, an absence of composite knowledge of HC on adolescents would be more prominent than the teachers HC understandings.

Implications for Phase Two. Since there was no known exemplar of a HC survey, the initial creation was broad covering multiple aspects of the HCM. Discourse between the teacher educators, teachers, and the researcher assisted in clarifying the intent of survey items, word choices, removal of items, and applicability to adolescents. Determining whether an item reflected the intent both of its words and the construct was part of the discovery process in Phase 1, e.g., “Education is important to me” stimulating

questions concerning what the word education means, so it was narrowed to "Academics, doing well in school are important to me." Teachers determined that body weight was too personal and others thought adolescents would fail to make the connection of the financial impacts body weight incurs across the lifespan (adolescents live in the moment). Because of these determinations, survey items totaled 36; however, the process of survey development has many phases and evaluation of focus groups and quantitative data after survey completion in Phase 2 will be necessary to ensure the survey items are relevant to adolescents.

Table 1

Phase 2 HC survey item examples.

Construct	# Items	Example
Physical	7	I find ways to incorporate 60 minutes of physical activity in my daily routine.
Emotional	6	I believe I can succeed.
Individual	6	I consistently set and attain my goals.
Social	6	I belong to a club or faith based group that meets at least twice a month.
Intellectual	6	I am able to prioritize and make decisions when completing homework and tests.
Financial	5	I can afford to have a gym or fitness club membership.

Note. 36 items total.

Table 2

Teacher Interview	Theme
"I don't know what human capital means, but my subject is crazy fact heavy so I spend a lot of time on that" C	**Developing HC Knowledge**
"This is actually pretty good (HC) I could use this, I never thought about developing other areas of HC in my class" I	
"Definitely show support, believe in them, emotional support" A	**Supporting the Big Picture**
Sometimes adolescents have tunnel vision, everything is about now, we have to make connections for them" E	
"If you're not physically healthy & fit, it makes the rest of your life really difficult. Academics, finances (Dr. bills)" B	**Human Capital**
"Family structures have changed, teachers are in charge of more whether it's moral values, decision making, mentoring" D	
"High in physical skills, high socially, problem solvers, aware of strengths & weaknesses, assertive, push themselves, willing to make mistakes" G	**Power of Opportunity**
"High human capital=confidence, healthy, value education, life=me learner, active, benefits of investments" H	

Results Phase 2: Construct Validity and Reliability

Exploratory factor analysis, repeated measures, and adolescent focus groups were utilized to answer research question 2) How do adolescents perceive HC?

Data were reduced using SPSS v.21. Table 3 displays the descriptive statistics and Table 4 shows the factor loadings based on a principal axis factor analysis for the human capital survey. Six factors were extracted from the human capital survey: physical,

emotional, individual, social, intellectual, and financial.

Reliability. Reliability was confirmed through test-retest whereby a sub-group of adolescents (n=38) enrolled in summer school physical education completed the survey on two different occasions (Table 6). Internal consistency of the summated scales of the HC constructs found Cronbach's alpha coefficient indicated good internal consistency ($\alpha > 0.80$), actual was 0.804 (Table 5).

Focus group results. Focus groups interactions lasted approximately 40 minutes during which the clarity of the questions and relevance to adolescents was examined within the groups' discourse and noted by the researcher. Adolescent perceptions gleaned from these focus groups reinforced what was relevant to them regarding how they viewed the survey items and aided the researcher in revising the survey. There were four themes that emerged from these focus groups: (a) *Knowledge of HC*, (b) *Connectedness*, (c) *Adolescent Backgrounds*, and (d) *Construct interdependence.*

Knowledge of HC. Adolescent focus groups had no prior knowledge of the HC constructs and were very interested in discussing the concept of HC and how it applied to their lives. For example, Lindsay stated, "I had never heard the term (HC) before today." One focus group participant associated HC with economics, while others indicated some aggregate knowledge but no total capital conceptions. "I've just been looking at those aspects individually (HC)" (Bill). Despite the lack of initial awareness, when the adolescents were presented with a definition of the term they began to make linkages. Many adolescents stated that as they progressed through high school, they developed a stronger sense of self and thought all of their experiences (good or bad) shaped their perceptions. Physical health polarized most adolescents into two groups, either for

working towards physical health ("active body, active mind") or taking physical health for granted, not wishing to participate in healthy activities ("I would rather write (than be physically active)." Almost all agreed that school was a place of academic productivity and they wished more experiential learning involving social grouping could be incorporated.

Connectedness. Focus groups were able to shed light on the importance of social and emotional connectedness among adolescents. Discussants felt that the primary goal for school was intellectual production and felt they received little emotional support in the classroom setting. Focus groups stated that emotional instability affects every aspect of HC (after they understood HC components). Several said they wished schooling would incorporate more social and emotional interactions instead of knowledge production. "There is a lot of importance on facts and equations (school)...(preparation for class) takes time away from the experiences we could be having with friends and family (emotional connections)" (Lindsay/Amanda). "We need social skills, confidence, and knowledge to succeed in life (how to deal with people), and then you've got to balance family and friends" (Lindsay).

All adolescents agreed that social and emotional learning accelerated during extra-curricular activities and many viewed these experiences as crucial to building HC. "Just like working together (teamwork)" (Booker). "I've had to interact with people a lot more (during extra-curricular activities)" (Eastbrook).

Adolescent Backgrounds. Both focus groups illustrated how life experiences contribute to building an individual's HC. For example, "My parents work a lot so I had to learn to be independent" (e.g., get food, find friends) (Amanda), and "You see stuff

that people are going through, it gives you perspectives on life, helps with emotional capital and self-esteem, (realize that your life is not so bad)" (Brad). Former athletes stated, "Athletics helped me set goals and learn to push myself" and "Find a drive within yourself to do better today than you've done before (investments in yourself)" (Lindsay & Amanda). Justin concurred remembering, "I've had a similar experience with mountain biking...pushing yourself." Lancer played sports her freshman year but then started devoting her time to the tech crew, she recalled, "When I was on tech crew I was in charge of 15-20 underclassmen (taught me a lot about leadership) as a leader, I had to take care of time management and put my team's (underclassmen) concerns above my own while being productive." Participants felt they matured a lot with the accumulation of (real world) experiences, especially the events that were shared as Booker stated, "When I worked construction over the summer, I learned how to work with a group of people, people from all walks of life and hardships," these shared experiences increased their awareness of people and themselves outside of their immediate world (gave them a broader view of life). All adolescents stated that their HC increased greatly over four years of high school, "Confidence and independence (gained from freshman to senior year)." Justin stated that "Maybe we won't consciously pick up that we learned but all of it together, life experiences (cumulative effect of background) helped build our capital."

Construct interdependence. Across focus groups, most adolescents had strong conceptions of individual HC components, as the reflection stimulated a few to acknowledge patterns and imbalance in their lives. Emotional instability was raised as affecting every aspect of their HC. For example, "It can break down your ability to function (emotional)," "It's hard to have a school/work/life balance (emphasis on

academic success), if you're emotionally unstable, you might be financially unstable." Eastbrook and Justin felt strongly about physical capital being what drove the other capitals and stated, "I think physical and intellectual are tied together, working out controls my mood." Booker had a similar experience, "Working a physical job (construction) gave me a sense of productiveness, confidence & overall social confidence around other people." Although participants were not unanimous on which capital was the strongest, eight out of 10 thought at least one of the capitals were connected in some way stating, "Each one of them (HC) is reliant on another" and "Good physical capital will probably help with emotional capital" (Lindsay). Eastbrook reflected on extra-curricular activities, "Sports have helped me increase my social capital because I would not get out of my comfort zone if I wasn't forced to." One person had a revelation after hearing that sports helped someone with their social aspects, he viewed things singularly (physical builds physical) by the end of the focus group he was verbalizing how different capitals could affect others. Amanda was the first to comment on total capital, "If you have greater total HC, you probably feel better about yourself." The HC topic was challenging for Bill, he started the focus group pessimistically but towards the end stated, "I don't think they have to be connected, but to be the most ideal person you need to cultivate all of those HC aspects individually...I didn't see connections between physical and financial capital until we talked about them." Brad's thoughts were reflective of general observations, "There can be imbalance." Lindsay agreed and gave an example of imbalance, "You see people financially well off but they're missing like that emotional health," which led to other participants chiming in,"Or physical health" (Brad) "Or intellectual" (Justin).

As a result of these findings, it was clear that for the adolescents to accurately complete the survey, a definition, presented at a developmentally appropriate reading level, would need to be included in the survey introduction. Further, readability statistics were gathered from the survey. After the general discussion, the adolescents have presented the survey to review and make suggestions to improve the survey content validity.

Adolescent Feedback on the Survey. Focus group participants helped with revision of survey item statements improving the relevance to adolescents, for example, "I would describe my body weight as healthy" participants stated that they felt this statement aligned with emotional capital instead of financial (obesity health care costs). An example of clarification came from an item stating "My ability determines my success" adolescents asked, which ability, work ethic or natural. As a result of discourse, the body weight question was dropped, and the word ability was changed to individual work ethic. Questions were reviewed individually utilizing qualitative and quantitative data resulting in a 38 item HC survey that was administered to a more diverse group of subjects in Phase 3.

Summary of Phase 2 Findings

Adolescent perceptions of HC both quantitatively via EFA's and through the focus groups facilitated modification of the 36 item instrument created in Phase 1 into a 38 item assessment after Phase 2. Focus group responses detailed both what was important and what they thought about the individual HC survey items. These qualitative responses informed the researcher as to what or why some of the quantitative results (e.g. factor loading) might have occurred. Using multiple sources of evidence gave more

clarity when attempting to confirm the HC model. Relevance to adolescents and content was key to creating a meaningful measurement tool and the focus groups benefitted the researcher's efforts.

Although adolescent views differed concerning the 6 subscales of HC and their connectedness, all agreed that increasing emotional capital within the school setting would have positive outcomes for them. Participants also placed great value on experiential learning as referenced by the quotes in the discussion section. They relished the autonomy and feeling of accomplishment their extra-curricular activities provided. When asked to define someone with greater HC, both focus groups reported identity (awareness of self) as an outcome. All agreed that over four years of high school they increased their sense of self by strengthening their aggregate HC, which in turn fortified the connections between HC components.

Implications for Phase 3

Initial administration of the survey in Phase 2 consisted of a readily available sample of a homogenous group of adolescents. Because designing a reliable survey was foundational to this study, generalizability to the adolescent population demanded an increase in demographic variability. A larger, more diverse group of respondents with the intent to locate stratifications between and among constructs, individuals, and demographics was the goal for Phase 3.

Table 3

Adolescent Focus Group	Theme
"I had never heard the term (HC) before" FG2	Knowledge
"School is about being productive" FG1	
"During high school, you go through mindset changes, you connect with different people and yourself" FG1	Connectedness
"I think we need more opportunities to deal with people, school is all about facts & equations. Actual experiences & interactions are important for a healthy lifestyle" FG2	
"Everything you're exposed to helps develop your HC. All of it together, our experiences" FG1	Adolescent background
"Some people are advantaged, like if their parents are rich & they're given everything. Short term that's great but they may be less self-efficient than someone that's had to work harder to get what they want" FG2	
"My Mom goes insane when she doesn't work out, & I know other people that just can't focus, get moody, & can't function unless they work out" FG1	Construct Interdependence
"There can be imbalance, high in one HC area & low in another" FG2	

Table 4

Descriptive data phase 2.

	Mean	SD
Age	18	.00
Emotional	3.98	.45
Intellectual	3.75	.42
Physical	3.23	.64
Social	2.99	.58
Individual	3.75	.54
Financial	3.37	.51
Total Capital	126.27	12.28

Note. N=333, 40% female.

Table 5

Rotated Factor Matrix	1	2	3	4	5	6
PC7_vig4xwk	.831					
PC5_60min	.796					
PC3_ex2xwk	.738					
PC4_hr	-.556					
INT5_exfocus	.520					
PC1_sports	.475					
FC2_gymmem	.379					
EC5_feelgood		.734				
EC4_succeed		.600				
EC2_conf		.489				
FC4_weight		.477				
EC6_optimistic		.473				
EC1_fun		.378				
INT1_ed						.330
IND5_timeline			.684			
IND2_goals			.584			
INT4_prioritize			.562			
IND1_try			.511			
INT3_multitask			.439			
IND3_doright			.365			
FC3_revill				-.571		
FC5_missschool				.498		
FC1_dr				.452		
EC3_stress				.426		
IND4_revtime				-.394		
INT2_concentrate				.385		
SC6_peers					.589	
IND6_revinitiative					-.468	
SC2_media					.423	
PC6_screen						
SC1_club						.539

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 9 iterations.

Table 6

Phase 2 survey reliability.

Construct	Items	α*	Items	α	Items	α
Physical	7	.489	3	.849	6	.687
Emotional	6	.447	4	.709	6	.746
Intellectual	6	.169	4	.468	6	.359
Social	6	.315	4	.384	7	.474
Individual	6	.638	4	.711	7	.720
Financial	5	-.11	3	.285	6	-.023
Overall	36	.743	22**	.804	38	.837

Note. N=333, α=Cronbach's alpha, *=initial raw data, **items retained, modified to 38 at the end of Phase 2. Test/retest reliability α = .945.

Results Phase 3 Construct Validity and Reliability and Contextual Variations

Multiple sources of evidence were used to answer research question 3) How does perceived HC vary by gender, age, and context?

Determining construct validity and reliability was the focus of Phase 3, while examining the contextual variations was a secondary aim. Administration of the revised survey from Phase 2 confirmed the measurement of the HCM constructs of physical, emotional, individual, social, intellectual, and financial capitals had been achieved across different contexts. Reliability of the revised survey was also confirmed and followed by the reduction of survey items from 38 to 27. The third phase of the study was intended to address the research question, "How does perceive HC vary by gender, age, and context?" Using an exploratory factors analysis (EFA), confirmatory factor analysis (CFA), linear regression, hierarchical regression analysis, and analysis of variance (ANOVA), these variables were examined.

Survey Construct Validity: Adolescent Perceptions. Adolescent respondents (n=979, Mean age=16.3, SD=1.72, 40% female, 40.7% White, 36.7% Hispanic, 11.5%

Black, 7.3% Asian, and 35% Free lunch, see Table 6) completed the 38 item HC survey during the school day. Five sociocultural items were added to the Phase 3 survey as an attempt to increased relevance for the expanded target audience of diverse populations. Teacher educators (n=5, 20% female, 80% Black, 20% Hispanic) and graduate students (n=5, 40% female, 60% Black, 40% Hispanic) reviewed the cultural items during development and upon completion.). Because some of the Phase 2 survey items were deleted and modified, the structure needed to be re-examined and confirmed as loading on the HC factors with a goodness of fit. Reducing each factor to roughly three variables with high factor loadings was the goal. For example, "I prefer to be alone," was modified to "When I have free time, I prefer to be alone" representing social capital, as a result of the adolescent focus group discourse.

Survey Reliability. Repeated measures of a subgroup of adolescents (n=93, Mean age=15.7, SD = 1.22, 48% female, 88% White, 4% Black, 4% Hispanic, 3% Asian) transpired, and all Phase 3 respondents completed the 38 item HC perceptions survey during the school day. Internal consistency was confirmed for the second iteration of the HC survey by administering the survey twice on different occasions to the same group of respondents (Table 9).

Student Focus Groups. To increase the generalizability of the HC survey, an additional focus group containing diverse adolescents met to ascertain if their thoughts were being captured through the survey. Focus group participants (n=6, 67% Black, 33% Hispanic, 100% male, 100% free-reduced lunch) expressed the importance of relationships and support from adults in their lives. Although knowledge of HC was new to them, 6 out of 6 young men stated that the school environment supported them with

resources and social support and genuinely cared about them as individuals. Four of six participants believed that HC in one area was highly related with HC in another area. All other focus group responses corroborated the previous adolescent focus group findings (e.g. emotional capital was important to them).

The model was confirmed through EFA followed by CFA using MPLUS after survey administration with the root mean square error of approximation (RMSEA), comparative fit index (CFI), and the standardized root means square residual (SRMR) $X^2(347, 979)=1491.16$, CFI=.747, RMSEA=.067 (Table 10). Survey items were reduced from 38 to 27 across six factors of HC in an attempt to reduce participants burden. Overall reliability was .837, and the individual subscale reliability is noted in Table 9. Factors loaded on the six HC subscales of physical, emotional, intellectual, social, individual, and financial capitals.

Predictors of HC. Investigation of predictors of HC were examined through a linear regression of the six subscales of HC on total HC, contextual variables on the six constructs (Table 11), and a two-stage hierarchical regression analysis using the aggregate component variables of physical, emotional, individual, social, intellectual, and financial capitals, age, gender, course enrolled, ethnicity, and SES (denoted by free lunch) on total HC. Emotional, individual, and physical perceptions were correlated highest respectively with total adolescent HC (Table 12).

In the first model, ethnicity, age, and gender were entered, and in the second, free lunch, and course enrollment (i.e., none, band, physical education, athletics, dance) were the variables of interest. Table 13 displays the correlation of hierarchical variables with free lunch and gender being the most strongly correlated with total HC. Model 1 showed

age, ethnicity, and gender as significant covariates $F(3,905)=18.74$, $p<.000$, $R^2=.058$, Adjusted $R^2=.055$. However, adding free lunch and enrollment in Model 2 increased predictive power $F(5,903)=33.24$, $p<.000$, $R^2=.155$, Adjusted $R^2=.151$ (Table 14). Based on structure coefficients, the best indicator of total HC described in the model was free lunch, followed by gender.

Comparison of total HC means by age through ANOVA produced a model with significantly different means between age groups $F(7,901)=4.795$, $p<.000$, $\eta^2=.036$. Results of a Tukey post hoc test indicated that total HC increases with age. Seventeen-year-olds demonstrated the greatest increase ($M=140.17$, $SD=15.02$) in comparison to all younger aged people with thirteen-year-olds ($M=130.52$, $SD=14.5$) (Table 15).

Univariate analyses examining ethnicity, gender, and age on total HC revealed that Hispanic adolescents total HC was significantly lower ($p<0.01$) in comparison to other ethnic groups in the study (Table 16). In general, male perceptions of total HC were higher than females except among Black females aged 16 and 18 and White females aged 18 who displayed higher perceptions of total HC. Viewing the interaction between all three variables showed White males, aged 17, and Black females, aged 18, highest in perceptions of total HC.

Summary of Phase 3 Findings. Following the structural content development, quantitative results from the survey were evaluated to inform its refinement and to investigate relationships between the constructs, demographics, and courses affecting HC. Specifically, identifying predictors of aggregate and total HC through hierarchical regression analysis and comparing the means of variables through ANOVA, determined who and where adolescents perceive the higher amounts of HC. Diversified environments

across subjects may produce independent levels of HC among adolescents and knowing which course, gender or construct affects HC supports possible interventions. Identifying free-reduced lunch (SES) and gender as predictors of total HC acknowledges the need for access and support to facilitate growth through opportunities presented within the school and community settings. Adolescents from low SES backgrounds experience a lack of support as the focus group in Phase 3 discussed. Building a sense of community through before and after school activities promotes adolescent empowerment and scaffolds support systems (Carson et al., 2014). Increasing one's total HC elevates agency within that person, that is, they are empowered to make decisions that will positively affect their future.

Age was also shown to be a factor in developing total HC in this study revealing incremental increases until age 17. Schools and communities have the potential power to influence children and adolescents in a cohesive systemic manner through their daily contact and support. Creating an assessment tool for HC provides a visual representation for improving the breadth of resources offered to adolescents and their surrounding communities.

Table 7

Descriptive statistics phase 3.

	Mean	SD
Age	16.3	1.72
Emotional	3.92	.61
Intellectual	3.68	.47
Physical	3.43	.77
Social	3.38	.58
Individual	3.85	.54
Financial	3.41	.45
Total Capital	137.34	15.43

Note. N=979, 40% female, 35% free lunch, 41% White, 37% Hispanic, 12% Black, 7% Asian.

Table 8

Phase 3 HC survey item examples.		
Construct	# Items	Example
Physical	6	I exercise or lift weights to strengthen & tone my muscles twice or more per week.
Emotional	6	Experiencing fun & enjoyment motivates me to participate.
Individual	7	I take the initiative when trying to follow a timeline to complete tasks.
Social	7	My family supports & encourages my participation in activities.
Intellectual	6	Academics, doing well in school are important to me.
Financial	6	I have a job to earn my spending money.
Sociocultural	5	My family values education.

Note. 38(43) total (with sociocultural).

Table 9

Phase 3 survey reliability.				
Construct	Items	α	Items	α
Physical	6	.687	6	.846
Emotional	6	.746	5	.755
Intellectual	6	.359	3	.680
Social	7	.474	3	.474
Individual	7	.720	6	.720
Financial	6	-.023	4	.337
Sociocultural	5	.308		
Overall	38(43)**	.837(.742)***	27❖	.842

Note. N=979, α=Cronbach's alpha, **=5 sociocultural items added (43 total items), ***=reliability of 43 items, ❖ = total items reduced to 27, Test/retest reliability α = .704.

Table 10

Goodness of fit indicators of human capital model.

	X^2	Df	CFI	RMSEA	SRMR
EFA (6 factors)			.934	.031	.039
CFA (6 factors)	1491.162	347	.747	.067	.155

Note. MPLUS phase 3 analyses.

Table 11

Bivariate correlations of contextual variables.

Constructs and demographic variables		Gender	Age	Ethnicity	Course	SES
Physical capital	Pearson Correlation	-.262**	.097**	.174**	.217**	-.202**
	Sig. (2-tailed)	.000	.003	.000	.000	.000
	N	970	932	932	970	970
Emotional	Pearson Correlation	-.212**	.181**	.095**	-.009	-.171**
	Sig. (2-tailed)	.000	.000	.004	.775	.000
	N	966	928	928	966	966
Intellectual	Pearson Correlation	-.086**	.057	.078*	.023	-.187**
	Sig. (2-tailed)	.007	.082	.017	.466	.000
	N	970	931	931	969	969
Social	Pearson Correlation	-.046	.057	.182**	.128**	-.260**
	Sig. (2-tailed)	.149	.081	.000	.000	.000
	N	975	937	937	975	975
Individual	Pearson Correlation	-.043	.153**	.045	.004	-.176**
	Sig. (2-tailed)	.180	.000	.168	.906	.000
	N	971	933	933	971	971
Financial	Pearson Correlation	-.061	.119**	.047	-.029	-.243**
	Sig. (2-tailed)	.056	.000	.151	.362	.000
	N	972	934	934	972	972

Note. SES denoted by free lunch. *p<.05, **p<.001.

Table 12

Bivariate correlations of HC subscale regression on total capital.

	Total capital	Intellectual	Emotional	Physical	Social	Individual	Financial
Total capital	.						
Intellectual	.699	.					
Emotional	.769	.492	.				
Physical	.735	.363	.423	.			
Social	.651	.281	.363	.429	.		
Individual	.761	.584	.611	.400	.265	.	
Financial	.627	.417	.395	.316	.321	.415	.

Table 13

Hierarchical regression variables bivariate correlations.

	Total Capital	Age	Male Female	Ethnicity	Freelunch	Enrollment
Total Capital	.					
Age	.149	.				
Male Female	-.177	-.262	.			
Ethnicity	.154	.101	-.129	.		
Freelunch	-.302	-.208	.077	-.321	.	
Enrollment	.109	-.430	.173	.065	.060	.

Table 14

Results from hierarchical regression analysis on total capital.

	Model 1			R^2=.058	Model 2			R^2=.155
	B	S.E.	β	*F*	B	S.E.	β	*F*
(Constant)	121.130	5.827		18.74***	118.795	6.942		33.24***
Age	.970**	.320	.101		1.364***	.338	.143	
Male Female	-4.269***	1.068	-.134		-4.873***	1.016	-.153	
Ethnicity	2.154***	.554	.127		.348	.557	.020	
Free lunch					-4.252***	.524	-.267	
Enrollment					3.090***	.500	.212	

Note. ** = p<.05, *** = p <.001.

Table 15

ANOVA results on total capital by age.

	df	*F*	η^2	*p*
Between groups	7	4.79***	.036	.000
Within groups	901			

Note. ***p <.001.

	13	14	15	16	17
Mean	130.52	136.64	137.48	137.26	140.17
SD	14.51	15.82	14.92	16.17	15.02

Note. Ages are listed above the mean.

Table 16

ANOVA results on total capital by age, gender, and ethnicity.

	df	*F*	η^2
Corrected model[a]		4.900***	.218
Gender	1	.450***	.001
Ethnicity	3	6.312***	.022
Age	7	4.489***	.035
Gender*ethnicity	3	.834	.003
Gender*age	5	3.055**	.017
Ethnicity*age	18	2.495**	.050
Gender*ethnicity*age	12	.820	.011

Mean(SD)

		15	16	17	18
Asian	male	146.60(18.88)	140.20(21.52)	145.50(8.66)	133.00(16.66)
	female	129.71(13.77)	126.00(13.44)	140.60(17.21)	132.13(6.08)
	total	139.65(18.57)	133.89(18.85)	142.78(13.53)	132.56(12.12)
Black		136.07(9.46)	137.59(17.42)	142.59(14.40)	141.89(12.15)
	female	138.00(13.14)	**143.00(.)**	132.67(19.01)	**148.75(5.12)**
	total	136.47(9.95)	137.89(16.95)	141.10(15.03)	143.14(11.43)
Hispanic		131.52(15.59)	132.87(18.10)	132.39(16.29)	135.55(24.11)
	female	127.49(11.13)	129.52(14.36)	127.24(9.79)	128.60(14.37)
	total* **	**129.79(13.9)**	**131.69(16.85)**	**129.89(13.59)**	**133.28(21.50)**
White		144.22(13.25)	144.52(12.82)	**145.56(12.91)**	141.34(12.00)
	female	141.76(10.94)	135.44(12.82)	142.86(15.58)	**142.91(11.60)**
	total	143.74(12.83)	142.64(13.44)	144.98(13.44)	141.93(11.81)

Note. [a]R^2=.218, Adjusted R^2=.174.

**p <.05. ***p <.001.

DISCUSSION

Knowledge and perceptions can polarize an individual's growth trajectory both formally and informally throughout life. Awareness of self and how one is positioned in his/her family, school, community, or workplace is continuously evolving and susceptible to environmental influences. Therefore, developing a positive support system early in life is advantageous to success. One such system is the *Whole School, Whole Community, Whole Child* (WSCC), whereby the primary goals are to increase cognitive, physical, social, and emotional development while decreasing risky behaviors in youth. WSCC strives to provide congruent messaging between schools and communities to build relationships, which in turn become support systems for the people they serve. By creating opportunities before, during, and after school for youth and adolescents to participate in healthy behaviors, WSCC initiates the process of positive asset development. Literature has identified correlations between asset levels and increased academic performance, positive health behaviors, social-emotional learning and resilience (Scales, Roehikepartain, & Benson, 2011). Determining the underlying constructs of how assets are developed is complex requiring baseline knowledge. As such, investigating methods of assessing, tracking, and increasing asset levels are warranted. Accordingly, the purpose of this dissertation was to compare the perceived human capital (HC), as a set of positive assets, among adolescents and the influence of educational experiences on the development of HC. Secondarily, this research will investigate the predictive characteristics of individual characteristics such as gender, age, and context on perceived HC.

The research was grounded in the HC model, which mirrors asset development

concepts and has evidentiary support (Bailey et.al., 2012). Although the HC model is backed by extensive research concerning the benefits of physical activity, there was no method of assessing the six subscales or total HC itself. Creating a survey to quantify the attainment of HC was the first step in answering questions of when and how much HC is displayed by adolescents. This study extends the current research on HC and begins a line of research concerning assessment tools and the ability to foster adolescent HC growth in school and community settings.

Human Capital and Professional Development

Teacher educators framed HC within physical education research which led to further reflection on the evolution of HC. The support from teachers has implications for teacher preparation programs which are discussed further in the teacher educator section below.

Focus groups discovered that teachers saw themselves as developers of HC once they understood its definition. Before this conversation about HC, teachers reflected on the knowledge their students acquired in their classroom. During this conversation, the theme of supporting the big picture (e.g. emotional support, delivering the why, and the scaffolding of social connections) came forward as critical to adolescent motivation and thriving (Scales et al., 2006; Bandura, 2006). All teachers stated the importance of daily physical activity for healthy adolescents. Teachers acknowledged that increased learning takes place when adolescents are motivated and when they feel connected to friends, family, communities, and educators (Carlson & Hastie, 1997; Cox et al., 2009). Utilizing these communities are advantageous to everyone, especially students of color that thrive on social connections to learning (Benes et al., 2016). After this conversation, teachers

asked for professional development (PD) on HC for the rest of the staff because employing the Whole of School model though these networks strengthen the cohesive message sent to adolescents concerning the opportunities to build HC and the empowerment that comes with it (Sallis, 2012). This finding is telling because teachers from all areas subject areas requested PD concerning HC. Unfortunately, secondary PD is usually core subject-based and impactful opportunities to espouse the benefits of physical activity before during and after school are very rare. PD on HC necessitates a united front across families, schools, and communities with a cohesive message to all stakeholders involved deconstructing what each person's role demands. Although Phase 1 was considered a genesis of knowledge for the HC survey, it extended HC knowledge into future enrichment possibilities for school and community settings.

Developing Human Capital Among Adolescents

Adolescents had little formal knowledge of HC, but the concept and importance were known and accepted by the adolescents. Many spoke of their background experiences such as athletics and the confidence they gained from participating (Sallis et al., 2000). Adolescents gain prosocial behaviors from involvement in athletics through the Whole of School models such as responsibility, conflict resolution, and self-esteem (Scales et al., 2011). Engaging in physical activity in these settings strengthens their network which will help maintain motivation and achievement in the future (USDHHS, 2008). One area adolescents felt their school could better address was the development of emotional capital. Knowing the significant contribution that emotion has with total HC, teachers, and administrators should re-think their approach developing emotional capital in adolescents, because of the influence emotion may have in mediating social and

financial competencies (Gendron, 2004). Although the focus groups produced a qualitative understanding of HC, more quantitative data is needed concerning adolescents life experiences. For example, the HC survey subscales could be aggregated to generate a refined instrument to measure adolescent emotional indicators. Educate counselors on the HC topic to increase awareness of adolescent tendencies. Another avenue is peer mentoring, the upperclassmen in the focus groups have clearly learned valuable lessons, why not have them share with other adolescents thus benefitting both parties and establishing a framework of peer support.

Focus groups and interviews allowed a rich discussion to flow between the researcher and participants which informed the survey design components. Following survey administration, quantitative analysis confirmed general thoughts of HC while simultaneously troubling other areas of the demarcation of HC constructs. Both types of analyses were necessary to create a balanced survey that aligns with HC. If only one method of analysis were employed, the survey results would have been skewed or led in one direction. Utilizing both qualitative and quantitative methods allowed the fairest representation of the population data to occur.

Self-Regulation, Agency and Human Capital

Self-regulation has been linked to adolescent physical activity participation during leisure time, that is, adolescents may use agency to make choices that ultimately lower their health risks and costs (Bandura, 2005; Matthews & Moran, 2011). This is important because Hispanic adolescents accumulate lower levels of total HC perceptions than any of their ethnic counterparts so making conscious decisions to increase healthy behaviors will give them a better chance of success. Adolescents that are female and from a low

SES environment also experience diminished levels of total HC. Implementing a Whole of School approach permits social factors to mediate differences for both low SES and female participants (Kawachi, 1997; Simpkins et al., 2012). Given that total HC increases with age and self-awareness, targeting Hispanic, female, and low SES adolescents at an earlier age when HC may be more impressionable (early intervention) could level the playing field for these diverse populations. Further, the communities of these adolescents should recognize the need for cohesive support in fostering HC within the WSCC format in hopes of reversing this trend at an earlier age.

Teachers and HC. Educational settings offer daily access and a built-in framework of support for adolescent HC development. Teachers influence classroom environments with instructional strategies such as visual artifacts, collaboration, expectations, and opportunities to engage in building knowledge and HC both individually and collectively. Providing a caring atmosphere that values an adolescent's experiential learning strengthens relationships and stimulates perceptions of self-efficacy within the classroom (resulting in increased emotional capital). Utilizing grouping strategies (i.e. partners, small, diverse groups) promotes collaboration, building social capital among adolescents. Teacher interview participants revealed that building relationships with adolescents (guiding/challenging them) was a significant part of why they remained in education. These bidirectional interactions impact both adolescent and teacher HC development, creating a sense of connectedness for them.

Extending the positive classroom ecology caused by individual teachers to interactions between classrooms, departments, administration, and communities facilitates a culture (i.e. a way of being) that fundamentally supports positive asset

development (HC) among everyone involved. In other words, people feel safe, acknowledged, and supported as they rise to challenges outside their comfort zone. Extra-curricular activities such as athletics were shown to predict total HC and are supported in the literature concerning asset building. Another example includes established club infrastructure within schools (e.g. student council members) furnishing peer support for adolescents. Visual messages of encouragement posted in hallways or throughout social messaging from these types of groups allow adolescents to identify collectively and acquire a sense of solidarity pursuant to achievement of their goals (Hunter, 2004; Sloane & Zimmer, 1993). People that have prior experience with a current adolescent's struggle allow them to view the situation through another lens while feeling supported.

Administrators lend support to the ecology by supporting team (school-wide) goals and adding their personal initiatives like establishing no homework days and service learning projects (giving back) periodically. Faculty and staff often contribute to the before, during, and after school climate through interactions in the hallways, cafeteria, gyms, and community. Impromptu settings increase the ability to reiterate congruent messages to adolescents. One example of cohesive (school-wide) healthy lifestyle messaging would be for cafeteria workers to simply position fruit and vegetable snacks next to the cash register as opposed to sugary, less nutrient dense foods, encouraging healthy food choices. Informal interactions are ideal for fostering new HC, and this can be achieved through verbal and non-verbal cueing (e.g. giving an adolescent a high-five).

More formally, developing instructional strategies and materials, whether involving counselors with surveys, lesson plans or professional development (PD) are effective ways to increase knowledge, identify when and where adolescents acquire

different HC constructs and how those opportunities may multiply across the school and community settings.

PD with teachers, staff, and the community concerning the meaning of HC and its implementation within varying environments would serve to generate discourse and appropriate local action plans. In essence, a define, apply and assess/reflect profile would begin by sharing research on positive asset building in adolescents detailing the beneficial outcomes of physical activity and decreased risk behaviors leading the evidentiary support to the recent term of HC. Given that physical activity (PA) is supported by research in every construct of HC, teachers should find ways to encourage or incorporate PA opportunities across the curriculum and school day. Also, proactive brainstorming sessions between experienced and inexperienced faculty are needed to establish best practice for individual communities. For example, the mutual advantage of peer messaging through public service announcements (PSAs) utilizes related media tools and health messaging to inform and engage adolescents in healthy behaviors. Further, recognizing a readiness for learning and methods for incorporating different HC within the school and community environments exemplify pertinent HC PD topics. Physical education teachers are uniquely positioned to offer access and environments conducive to PA opportunities before, during, and after school. HC is a formulation of life skills crucial to becoming the most well-rounded person and society possible. As such, establishing WSCC tenets of before, during, and after school are imperative to ensure all aspects of HC development are valued.

Extra-curricular activities are opportunities to foster the building of HC both within and outside the school day. The power of opportunity theme that emerged from

the teacher interviews refers to the advantages of participating in "extra" chances to develop HC. Structured events like band, dance, drama, robotics, and sports offer multiple opportunities for adolescents to build relationships, test their current skills, acquire new skills, and build character through HC attributes. Convincing cogent evidence from adolescent focus groups and quantitative data from this study suggest that participation in extra-curricular activities generates elevated HC levels among adolescents. Assets gained outside the school day inform within the school day interactions by strengthening an adolescents' perceptions and characteristics of HC. Focus groups from this current study spoke of the extended family extra-curricular activities supported while fueling an atmosphere of achieving common goals. Encouraging youth and adolescents to participate in extra-curricular activities increases the number of opportunities available for HC development. All teacher and adolescent participants agreed that the experiential learning taking place during extra-curricular activities are difficult to replicate in a classroom setting alone. Thus, it is believed that community involvement outside the school day would be beneficial for HC growth as evidenced by qualitative and quantitative results from the HC study.

Coordinating events across classes, families, and community partners demonstrate the cohesiveness of attempts to maximize an individual's potential. School settings have the advantage in developing HC in youth and adolescents through the *Whole School, Whole Community, Whole Child* framework. Advocating and providing opportunities for all adolescents to participate in physical activity before, during, and after school promotes HC development.

Structurally, early age adoption strategies throughout the district elementary and

middle schools would advantage HC growth in youth and adolescents. Administrative support acknowledging the importance of the HC mission through embedded policies and expected outcomes facilitates the optimal scenario for adolescent HC. HC PD is not a one and done philosophy, rather, continued maintenance of HC PD from all areas of the community (i.e., school, family, partnerships) is necessary to maximize everyone's potential. PD follow-up sessions may vary from in person techniques to online or cohort groups.

Teacher educators. The findings of this dissertation confirm that physical educators can champion the HCM in their schools and their role is vital to advancing the consideration of developing the whole child. Preparing future teachers involves decisions concerning what content is valued (e.g. requisite skills, HC development, pedagogical knowledge, evidence-based learning, field experience, collaboration) and how much time is given to facilitate learning. Building HC is a skill that is acquired through practice (opportunity) and reflection. Nesting HC within lessons warrants being intentional when designing pre-planned access points as well as acknowledging unplanned opportunities for HC development. Sometimes opportunities (situations) present themselves and teachers have to be ready to seize the moment. Beginning with informing preservice teachers of the HC constructs (defining), teacher educators then model various ways to incorporate HC (applicability) within the lesson. Following the lesson, reflections and assessments of what took place are discussed and reformulated to achieve maximum capabilities concerning adolescent outcomes. Modeling and practicing the fluidity of learning is embedded within the art of teaching; however, novice teachers may have difficulty envisioning its implementation in contrast to experienced teachers that may

readily demonstrate and apply the art of instruction. Teacher educators are asked to build the HC of future teachers who in turn fashion the HC of youth and adolescents. Explicitly, teacher educators enlist preservice teachers to practice implementing HC instructional strategies during field experiences. Mindful application during coursework leads to the ability to manipulate the school environment such that the HC outcome desired is integrated throughout the lesson plan. Preservice teachers gain self-efficacy as their instructional skill sets develop empowering them to engage adolescents in school settings, most recently facilitating emerging HC. Achieving elevated levels of HC in adolescents requires teacher educators to increase purposeful HC field experience opportunities, prepare future teachers to be ambassadors of the WSCC framework (increasing adolescent participation opportunities), and increase collaboration across disciplines and the community to brand a cohesive HC message to teens. Brand messaging from the teacher educators should be balanced across all intended courses and experiences signifying that "we are all in this together."

As generators of knowledge and research, teacher educators have a responsibility to in-service teachers concerning networking and PD. Delivering current research and best practice supports teachers in the field and maintains that feeling of connectedness (working towards a common goal) for everyone. Grounding teachers in applicable frameworks such as WSCC and Coordinated School Physical Activity Program (CSPAP) allow easier implementation of programs (curriculum) benefitting adolescents in the school setting. As discussed earlier, HC development is ongoing, and booster shots will be needed periodically if not systematically to support proper growth. Teacher educators are positioned as potential change agents to impact communities of people through their

network interactions and preparations of future teachers.

HC model. Providing evidentiary support was the goal of the expert panel convened in 2012 featuring physical activity (PA) as the driving force for the constructs of physical, emotional, individual, social, intellectual, and financial capitals in the HCM. Bailey and colleagues substantiated the underpinnings of the HCM with 500 research studies highlighting the benefits PA provide across the lifespan. Before the development of the HCM, conceptualizing the impact of PA in areas other than physical health were done in isolation. Utilizing the term capital as investment potential and locating it within a holistic view of people extended ways of thinking. The HCM houses the synergistic capabilities between investments in each of the six constructs, PA, and human development across the lifespan. Academically, this was a novel approach, and the founders should be commended for theorizing the HCM concept, and the role that PA plays within in the development of HC. Now that the theory has been established assessing the value and implications for various populations bears consideration. This study sought to survey adolescent perceptions of HC attempting to fit the HC model of physical, emotional, individual, social, intellectual, and financial capital constructs.

Across the lifespan there is a broad spectrum of development and variance aligning with the investigation of specific subpopulations. Assessing adolescent perceptions of HC through focus groups, interviews, and quantitative data revealed some relevance issues when applied to the HCM. Notably, adolescents struggled with connecting the HCM version of financial capital to their lives. Viewing the financial construct through an adult lens (e.g. improvement in income, job success, productivity/job performance, morale/commitment/turnover, and reduction in health care

costs, absenteeism/presenteeism) connections with HC perceptions are made. Consider an adolescent aged 14-18; developmentally they lack experience with many of the underpinnings of the HCM financial capital. The lack of connection became more apparent during focus groups where adolescents stated,

"I don't connect health care costs to financial," "Because financial it doesn't really affect us, it's not like something we think about"

Adolescents viewed financial capital as buying lunch or entertainment, things that are right in front of them. Focus group participants acknowledged that it was hard for them to connect financial capital presently, but suspected they might see some of the connections once they were out on their own or in college.

Teacher interviews supported the lack of connection between adolescents and financial capital stating,

"...they are completely dependent on their parents...," "...it's our job as teachers to show kids the connections...help piece them together...," "...I can see the financial, but I wonder if the kids can?" "Kids have no idea when they get hurt that Mom makes the Dr. appointment, takes off work, they don't understand that money goes into it"

Quantitatively, financial capital failed to load well triangulating the chain of evidentiary support concerning the lack of connection adolescents have with the HCM construct of financial capital. This researcher recommends removing financial capital in its current form when assessing adolescent perceptions of HC.

Alternatively, upon reviewing the HC perception survey results from over 1300 adolescents and transcripts from interviews and focus groups, renaming one of the constructs may be in order. Changing individual capital to a category of "agency" would

allow cultural strands from social capital to be included and give relevance to the skills adolescents are building developmentally. Under the current HCM, social capital covers an expansive list, moving culturally relevant questions into the agency category enables more opportunities to connect with diverse audiences. Given that total HC increases with age, adolescence is a period of developing the essential action skills to attain HC. Agency culminates the transitional period between youth and adulthood whereby actionable tasks/skills are initiated, sorted, and retained for future use based on results. Regarding school and community settings, agency is more descriptive of the qualities listed and would cultivate a richer association with the actions desired.

Following this research study, reducing the HCM to five constructs of physical, emotional, intellectual, social, and agency (including cultural aspects) is recommended moving forward. There is great promise in the HCM for all age groups across the lifespan; now researchers have to define developmentally appropriate indicators of each construct and design parallel assessment instruments.

Implications

Identifying when interventions are effective and what asset attainment is developmentally appropriate are areas in need of exploration. Adolescent HC perception data demonstrated that total HC increases with age. Perhaps interventions or environmental climate changes within schools and communities at earlier ages would facilitate growth in HC. The lack of HC knowledge was noted in interviews and focus groups, as such, bi-directional conversations between peers and adults have the potential to elevate awareness of HC. Accordingly, investigating how schools, teachers, and adolescents, in particular, utilize access, developmental knowledge, and experience to

develop HC has merit.

Social-emotional learning has been a recent focus in schools as they try to establish caring, supportive climates building collaborative relationships (Durak et.al., 2011). The focus groups and interview participants revealed personal connections with aggregate areas of HC and all of them stated that they wished more opportunities exist to build emotional capital. Adolescent HC perception results showed that emotional capital was the highest subscale correlated with total capital, thus accentuating the need for its inclusion in adolescent environments.

Initial predictive data from this study found contextual factors that influence adolescent perceptions of HC. More research concerning the role contextual factors such as physical environment, ethnicity, opportunities, and socioeconomic status (SES) play in increasing adolescent HC might reveal target entry points or implementation strategies for educational systems. In addition, the mindful inclusion of everyone by designing lessons to incorporate all aspects of HC is recommended.

The merging of qualitative and quantitative findings of this study indicate that the HCM can foster adolescents physical, emotional, and intellectual growth. Further, implementation of this model is feasible in schools and community settings. However, as evidenced by this study, there are differences in HC levels specifically related to ethnicity as well as accessibility to physical activity and extra-curricular opportunities. Such ethnic differences suggest that context and adolescent perceptions influence developmental constructs illustrated by the HCM. As such, future interventions should target diverse populations as well as communities that may lack accessibility to PA and extra-curricular opportunities.

This dissertation elucidated opportunities for conducting future research on HC. Despite the evidence revealed in this study, there is not a clear understanding of how adolescents perceive financial capital, and further research may uncover specific factors about this population. Future research should also investigate how pedagogical practices support the constructs of HC. Specifically, studies may seek to look at how incorporating the HCM into the traditional curriculum will augment development beyond academic outcomes. The HCM has the potential to stimulate conversation about how we develop the whole child within the whole school whole community.

Delimitations and Limitations

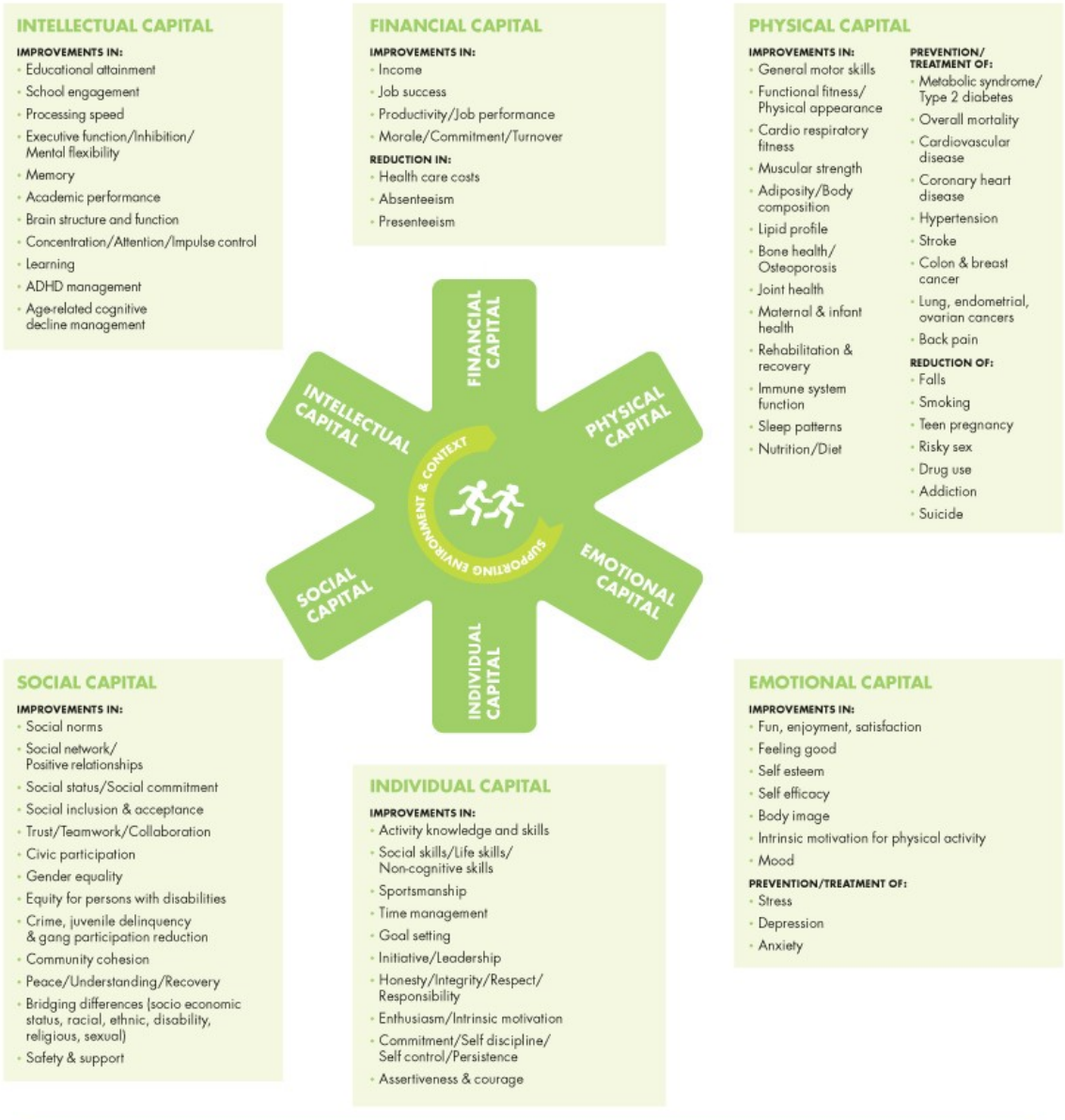
Acknowledging delimitations of this study considers that the perceptions of the adolescent HC survey are the first known assessment of adolescent HC and the first known quantification of the HCM. Utilizing teacher and adolescent feedback through interviews and focus groups provided general knowledge of HC as well as how it is developed in education and the alignment of the survey.

Limitations include that most of the subjects were purposefully or conveniently sampled as opposed to a true random sampling, which may affect generalizability demographically, also, 70% of the survey respondents were from one high school, also affecting generalizability to other populations.

Limitations also occur due to a lack of awareness of certain capitals; adolescents may have misinterpreted aggregates such as financial capital (e.g. health care is easy when you have insurance, but if a family does not have insurance then they would have to go to the emergency room if they got sick). Adolescents with limited knowledge may not realize that their family's processes (actions like going to the emergency room if they

do not have health insurance) are unique and would not identify them as components of financial capital.

Figure 1



Nike, Inc. initiated a multidisciplinary input and validation process with a pool of experts to develop this model, which is informed by more than 500 pieces of published research.

Appendix A

Teacher Interview Protocol

Conducted By: Dr. Darla Castelli, PhD – PI - Kinesiology and Health
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Lynne Bryant – Student –Co-PI - The University of Texas at Austin: Curriculum and Instruction Department; Telephone: 512-732-9260 X34902; Email: lbryant@eanesisd.net

The following protocol represents the format and sequence for conducting the semi-structured interview to collect information pertaining to the perceptions and observations of human capital from a participant.

Interviewer:

Hi _____, thank you for taking the time to speak with me today. I am developing a survey instrument hoping to assess adolescent perceptions of their physical, emotional, individual, social, intellectual and financial development, also known as human capital. I am very interested in your perceptions as a teacher/parent/coach concerning adolescent capital and what you have observed. I would also like you to read the adolescent human capital survey and then discuss how or if the content of each question is appropriate.

Before we start, I want to remind you that your participation is completely voluntary. You may refuse to answer any question that makes you uncomfortable and you may withdraw from the interview at any time without consequence. Depending upon your answers this interview should be completed in about an hour.

I would like to audio record your interview to ensure the authenticity and detail of your responses. Portions of this interview may be published or made public, but your name and any other identifying details will not be revealed. Tapes will be reviewed for research purposes only and will be retained for three years and then erased.

_____ I agree to be audiotaped

_____ I do not want to be audiotaped

If you have any questions now or at any time during this interview, please feel free to ask me about them. Are you ready to begin?

Background and Perceptions of the Human Capital

1. Tell me what motivates you to be involved with adolescents?

(why teaching)

2. Can you describe the main concepts you attempt to get your students to learn during the school year?

    Probe: instruction/skills the main goal

Based on your past experiences and current knowledge, the following questions explore what your perceptions are about the development of adolescents. There are no right or wrong answers to these questions.

3. What would you include in an adolescent's environment to support their physical and intellectual development?

4. How would you construct the classroom environment to foster social or emotional growth?

5. When you teach, do you approach students differently in any way, if so, how and why?

    Probe: meet them where they are, varying levels

6. Given your experience, have you noticed any patterns across your students' perceptions of where they are physically, intellectually or socially?

    Probe: If they're high in the physical area, are they high in other areas?
    Are these areas connected, independent of each other?
    Do some areas show more rapid growth?

7. Describe any difference you might see in the development of students involved in athletic classes compared to those in non-athletic classes? If there are differences, what would you attribute them to?

    Probe: differing time spent in each

8. How might physical education classes be different from other classes in terms of personal growth opportunities outside of the knowledge gained area?

    Probe: movement, interaction

9. What do you think of the statement that the greater your human capital, the healthier you will be?

10. In an informal group setting of their peers, do the dynamics of individuals seem to change?

    Probe: anything more pronounced, what emerges

11. What kinds of opportunities do you or the school provide each student to aid in developing the areas of human capital?
    (intramurals, before school, during school/lunch, after school)
    Probe: anything collaboratively to help students develop all areas of their being? Administrative support?

This concept of physical, intellectual, emotional and social development I've been asking you about is a new focus concerning children. It's been identified as human capital and highlights six areas including physical, emotional, individual, social, intellectual and financial.

12. Describe what you would expect to see from a student with high levels of human capital.
    Probe: leadership, confidence, interactions, emotional control

13. Now describe how the profile of a student with low human capital might be different.
    Probe: withdrawn, confidence, interactions, emotional control

Now I'm going to hand you a copy of the survey being developed to assess adolescent human capital. After each statement is one of the six areas of human capital, can you tell me if you think the statements capture the given capital?

14. As you completed the survey, did anything draw your attention? Did anything not make sense or was difficult to answer?
    (Positives, negatives)

Now that we've talked a little about human capital, do you have any other thoughts concerning teaching and the topic of human capital?

Thank you for sharing your insights with me.

Appendix B

Four Common Themes

Teachers

1) **Developing HC Knowledge**
2) **Supporting the Big Picture**
3) **Human Capital**
4) **Power of Opportunity**

Adolescents

1) **Knowledge**
2) **Connectedness**
3) **Adolescent backgrounds**
4) **Construct Interdependence**

Appendix C: Human Capital Survey: Self-Assessment

Instructions: Please read each statement and identify your current level of agreement by circling the corresponding number of response.

Statement	**Level of Agreement**				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Academics, doing well in school are important to me. *Intellectual*	1	2	3	4	5
2. Experiencing fun & enjoyment motivates me to participate. *Emotional*	1	2	3	4	5
3. I participate in at least one recreational or competitive sport weekly. *Physical*	1	2	3	4	5
4. I belong to a club or faith based group that meets at least twice a month. *Social*	1	2	3	4	5
5. Most of the time, I try to do my best, individually. *Individual*	1	2	3	4	5
6. I ask my parents for money to pay for recreational activities (movies, eating out). *Financial*	1	2	3	4	5
7. I am easily distracted in class & find it hard to concentrate. *Intellectual*	1	2	3	4	5
8. I am confident when making decisions. *Emotional*	1	2	3	4	5
9. I engage in health enhancing behaviors at least 5 days per week. *Physical*	1	2	3	4	5
10. Friends support me using social media like Facebook or Instagram. *Social*	1	2	3	4	5
11. Individually, I consistently set and attain my goals. *Individual*	1	2	3	4	5
12. I value making money & am mindful of how I spend it. *Financial*	1	2	3	4	5
13. It is easy for me to concentrate on more than one thing at a time. *Intellectual*	1	2	3	4	5

Statement	Level of Agreement				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
14. I am able to manage my level of stress. *Emotional*	1	2	3	4	5
15. I exercise or lift weights to strengthen & tone my muscles twice or more per week. *Physical*	1	2	3	4	5
16. Mostly, I go to school to see my friends. *Social*	1	2	3	4	5
17. Individually, I do the right thing when no one is watching. *Individual*	1	2	3	4	5
18. I pay for my own membership dues (NHS, fitness club, Spanish club) with my own money. *Financial*	1	2	3	4	5
19. I am able to prioritize and make decisions about academics, like when I am completing homework and tests. *Intellectual*	1	2	3	4	5
20. I believe I can succeed. *Emotional*	1	2	3	4	5
21. Most of my time, outside of school is spent sitting down with minimal increases in heart rate and breathing. *Physical*	1	2	3	4	5
22. My family supports & encourages my participation activities. *Social*	1	2	3	4	5
23. I take the initiative when trying to follow a timeline to complete tasks. *Individual*	1	2	3	4	5
24. I often miss school, work or club activities because I am sick. *Financial-reverse (R)*	1	2	3	4	5
25. Retaining information is easy for me. *Intellectual*	1	2	3	4	5
26. I feel good about myself most days. *Emotional*	1	2	3	4	5
27. I find ways to incorporate 60 minutes of physical activity in my daily routine. *Physical*	1	2	3	4	5
28. When I have free time, I prefer to be alone over hanging out with friends. *SocialR*	1	2	3	4	5

Statement	Level of Agreement				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
29. My individual work ethic determines my success. *Individual*	1	2	3	4	5
30. I think it's ok to have an occasional unexcused absence. *Financial*	1	2	3	4	5
31. My intellectual investment in academics determines my plans after graduation. *Intellectual*	1	2	3	4	5
32. I am optimistic in my life, seeing the glass as half full. *Emotional*	1	2	3	4	5
33. In a typical week, I increase my heart rate and breathing (through vigorous intensity sports or fitness activities) for a continuous 15 minute interval 4 or more times per week. *Physical*	1	2	3	4	5
34. My friends & peers influence my decisions & actions. *Social*	1	2	3	4	5
35. I usually wait for someone to tell me what to do as opposed to demonstrating initiative. *Individual R*	1	2	3	4	5
36. Attending school & work each day improves my productivity. *Financial*	1	2	3	4	5
37. Few friends follow me on social media like Facebook or Instagram. *Social R*	1	2	3	4	5
38. When faced with adversity (losing, injury, bad luck) I keep working hard to advance myself. *Individual*	1	2	3	4	5

Appendix D

Adolescent Focus Group Interview Protocol

Conducted By: Dr. Darla Castelli, PhD – PI - Kinesiology and Health
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The following protocol represents the format and sequence for conducting the adolescent focus group interview to collect information pertaining to the perceptions and observations of human capital from the participants.

Interviewer:

Welcome everyone and thank you for taking the time to visit with me today. I am a PhD student at the University of Texas at Austin and you have been asked to participate in this focus group to examine the many different attributes that combine to make us who we are including physical, emotional, individual, social and intellectual development. Human capital is a term used when talking about these developmental areas as a whole and the purpose of this study is to develop a survey instrument that will assess adolescent perceptions of the human capital.

Before we start, I want to remind you that your participation is completely voluntary. You may refuse to answer any question that makes you uncomfortable and you may withdraw from the interview at any time without consequence. Depending upon your answers this interview should be completed in about 25 minutes.

The general ground rules are as follows: everyone has a voice, all opinions matter and when we're through, please respect everyone's privacy concerning their responses.

I would like to audio record the interview to ensure the authenticity and detail of your responses. Portions of this interview may be published or made public, but your names and any other identifying details will not be revealed. Tapes will be reviewed for research purposes only and will be retained for three years and then erased.

If you have any questions now or at any time during this interview, please feel free to ask me about them. Are you ready to begin?

Opening Questions

1. How does it feel to be a senior?

2. What's the biggest difference between being a senior and a freshman?

I mentioned that many different attributes combine to make us who we are. Our varying levels of physical, emotional, social and intellectual development influence our independent responses to daily living challenges. The next group of questions concern your perceptions and experience with the subject of human capital.

Introductory Questions

3. What does the term human capital mean to you?
   Probe: Have you ever heard of human capital before you took the survey?
   Has that meaning changed for you over the last 4 years?

4. In what ways would someone with greater human capital be healthier?

Transition Questions

Think about the activities you've been involved with, whether it's clubs, extra-curricular, home, peers, schools or work.

5. Over the last 4 years, how did the different environments and adults you interacted with help you to advance in any of the six areas of human capital?

6. What would you consider to be the most influential area of human capital? What would be the least influential area?

Key Questions

The next few questions concern the human capital survey you completed.
(Hand them a survey)

7. When you completed the human capital survey, did you think the questions captured the main ideas of human capital for you?

8. How would you make this survey a more accurate description of what human capital means to high school students?

9. To help me create the best survey, tell me, were the questions easy to understand?

Ending Question

10. Knowing what you know now as a senior, is there anything you would pass on to underclassmen that might help them build their human capital?

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